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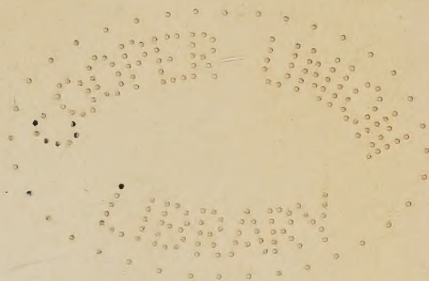


FIG. 20.

FIG. 21.

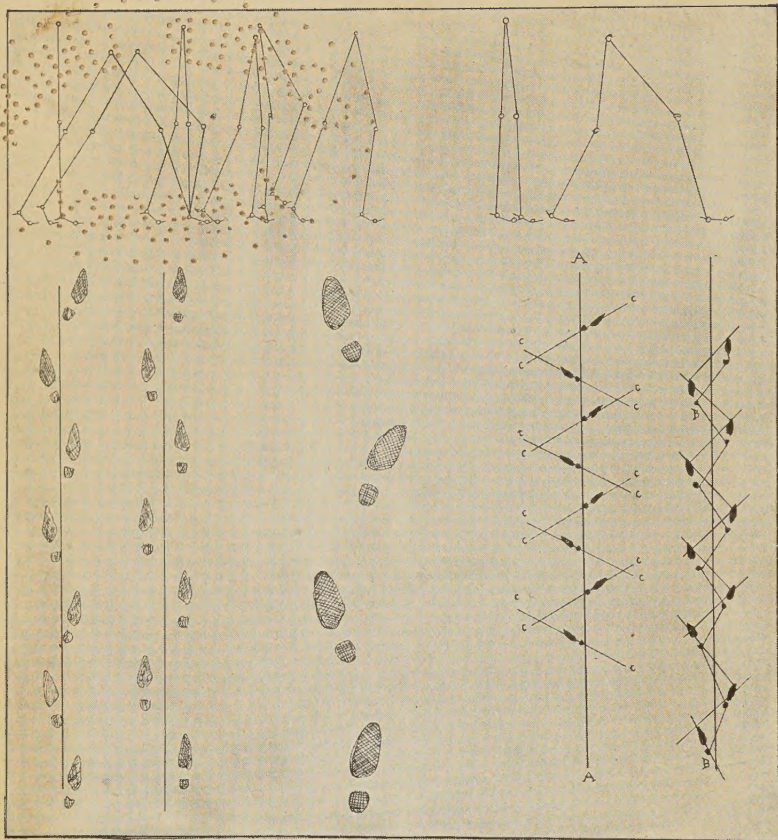


FIG. 16.

FIG. 17.

FIG. 25.

FIG. 18.

FIG. 19.

VARIOUS SUBJECTS IN THE STUDY OF FOOTPRINTS

FIGS. 16 AND 17. FOOTPRINTS OF PERSON WALKING WITHOUT A BURDEN AND ONE WALKING WITH A HEAVY BURDEN.

FIG. 18. GERMANIC THEORY OF THE NORMAL "LINE OF MARCH."

FIG. 19. "LINE OF MARCH" IN ABNORMAL PERSONS.

FIGS. 20 AND 21. MECHANICAL FACTORS IN THE ACT OF WALKING.

FIG. 25. PECULIAR FOOTPRINTS MADE BY PERSON WEARING A LEFT OVERSHOE ON BOTH FEET.

The MAN HUNTERS

By
MELVILLE DAVISSON POST



Illustrations by
WILLIAM D. I. ARNOLD

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PREFACE

IN undertaking to put together a work on scientific criminal investigation, the author has assembled data from all available authorities. He has considered this science as one would consider any other—geology, astronomy, or the like. If we had in our language no comprehensive work on geology, for example, and were endeavoring to formulate such work, we would be forced to include in it all that the best investigators anywhere in the world had determined. And this is precisely what the author has done here with this neglected science. It is the usual method in the structure of such works. He wishes, therefore, to give the fullest credit to the authorities on this subject in the hope that the reader will be encouraged to add these original works to his library. The leading authority is, of course, Gross of the University of Gratz. His monumental *System der Kriminalistik* is the great source of information on this subject, and after him *La Police et L'Enquête Judiciaire Scientifiques* of Niceforo, and *Manuel de Police Scientifique* by Reiss are the recognized authorities on the subject. The author is indebted to these authors for data on almost every page. The chapters on footprints are assembled from these authors, and especially Gross. The drawings of Mr. Arnold are for the most part after the originals of Gross and Niceforo, to whom credit is here given. The author

is likewise indebted to such works in the English language as *Southerland on Bloodstains* and the usual authorities on *Medico-legal Jurisprudence*; *European Police Systems*, Fosdick; *Police Practice and Procedure*, Cahalane; *Science and the Criminal*, Mitchell; *A History of Penal Methods*, Ives; *Siberia and the Exile System* and *A Russian Comedy of Errors*, Kennan; *Questioned Documents*, Osborn, and so forth.

The biographies and memoirs from which incidents, example cases and data have been assembled are also to be acknowledged and due credit given, *Days of My Years*, Macnaghten and *The Lighter Side of My Official Life*, Anderson, are the acknowledged sources of information on Scotland Yard and the cases and incidents coming to the attention of its Criminal Investigation Department. The memoirs on Monsieur Claude and those of Vidocq have been drawn upon on the French side for anecdote and incident and the diplomatic methods that have come to differentiate the *Service de la Sûreté* at Paris. In addition to those named here the author is indebted to innumerable authorities in nearly every direction. Indeed to acknowledge in detail all the sources of information going to the structure of this work, would be to clutter its pages with a mass of footnotes equal in volume to the text itself.

INTRODUCTION

THERE is only one way to put down the present revolt of the underworld. The criminal must be apprehended and punished. Punishment swift and ruthless will wipe it out. But before the criminal can be punished, he must be determined. The courts are adequate but the machinery for the detection of the criminal agent in America is not. Those who try the criminal for his crime are carefully trained for that work and required to pass comprehensive examinations by the state, while the detection of the criminal is left to the desultory methods of the village constable. Our system is overloaded at one end and bare at the other; crude, unscientific and careless, is the continental comment on it.

How can the court punish the criminal unless he is brought before it? There is the old recipe for cooking the hare. First catch your criminal! Every now and then some newspaper publishes a long list of unsolved criminal mysteries. It is a reflection on our intelligence. Of all the mysteries that confront the human mind, the criminal mystery is the very easiest to untangle. If we brought to their solution a moiety of the skill that we bring to the solution of the mysteries of nature, about us, the press would have no such list to print. The science of criminal investigation is practically unknown to us. The burglar turpentine his shoes and the county sheriff wonders why his bloodhound sits still on the doorstep. The police con-

tinue to fit a boot into a print and one finds an intelligent police department wondering vaguely how it could get an accurate copy of a letter without disturbing the sealed envelope that inclosed it. We seem unaware of the very existence of criminal investigation as a science. Its practical results fill us with wonder as the aborigine is filled with wonder at the white man's magic. The police brought Shauenheim a coat marked with a bloodstain. He looked at it a moment and said that the missing owner of the coat was dead. It proved to be true, but how could Shauenheim know that? The police showed an Austrian investigator a single footprint, he examined it with a glass, measured it with a steel tape and wrote out the following accurate description of the criminal: "Six feet one inch in height, slender, injured in right knee and a private in the German army."

These are no marvels out of Poe's Dupin or his echoes, Lecoq and Holmes. From the aspect and measurement of a single footprint, the individual making it may be built up, as the scientist builds up the prehistoric animal from its fossil print. There is an accurate table for the purpose, very carefully verified.

We must consider this science if we are to get rid of crime. And for this purpose, the author has undertaken to assemble the material for this work. The data in it ought to be available to every police investigator in America, every chief of police of every city, every sheriff, every county official concerned with crime; the criminal lawyer and the officials of the criminal court. And the general reader who thrills at a detective story will find here detective stories more incredible than Poe, Gaborieau or Doyle have imagined.

M.D.P.

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THE MAN HUNTERS

CHAPTER I

SCOTLAND YARD METHODS OF SOLVING CRIMINAL MYSTERIES

WE CANNOT get rid of an impression of mystery when we think about Scotland Yard. Some of the wonder of Bagdad clings to the name. The mystery stories of our youth radiated from this point. It was the delightful center of all the detective acumen of our romances—not more definitely located than the court of Arthur. Somewhere in the British Islands this fabulous seat of mystery existed.

As we thrilled with the “shilling shocker” it never occurred to us that Scotland Yard, from which the infallible sleuth issued on his wonderful adventures, was anything so commonplace as the headquarters of the London Police. Old Scotland Yard was located at Whitehall, and is said to have taken its name from the early residence there of the kings of Scotland. The headquarters of New Scotland Yard is now on the Thames Embankment. Its detective division is merely the Criminal Investigation Department of the Metropolitan Police.

In addition to these special departments there is a Central Office Squad, which will take charge of any extraordinary case that may occur in any of the divisions of the Metropolitan Police and, for that matter, anywhere in England. So that if a baffling criminal mystery should occur outside of London the local authorities could immediately have the benefit of a Scotland Yard man from this division.

It would not be exact to say that there is no specialization in Scotland Yard in any way parallel to the detective experts of the Continent. There are individuals in these divisions who become skilled in certain lines and are detailed to handle cases in which particular features are involved. But, as a rule, the whole organization is a rough, matter-of-fact, common-sense system for the investigation of criminal mystery.

The method is illustrated by the manner in which the police went about to discover the assassin of Lord William Russell.

This distinguished person was found dead in his room. The silver plate in the house was scattered about, various articles were tied up in bundles, as though burglars in their work of looting the place had been suddenly interrupted. The valet said that on the night before he had left his master reading in bed, as was his custom, the truth of which was established by the fact that the candle had burned down in the socket. And on one of the outer doors

leading into the court were marks indicating that it had been forced open.

The first step in this investigation was to examine the burglar theory.

Scotland Yard reasoned roughly that the crime was either done by some one from the outside or some one already in the house. The one exit from the forced door was into a court. This court was surrounded by a wall. The detectives examined the top of this wall carefully. They found it coated with dust. At no point was this dust disturbed. This showed conclusively that no burglar had entered or escaped by this route.

Then they examined the marks on the door, and by the direction in which the bolts were driven they were able to establish the fact that the violence had been applied from the inside. Having disposed of the obvious theory, they abandoned the investigation and began to look for the missing articles. Some of these were presently located in the keeping of a friend of Lord Russell's valet, and the police were presently able to demonstrate that the valet had committed the crime.

It will be seen from this example that the English method is to strike at certain prominent essentials in the solution of its man-hunting mysteries, and not to follow the minute deductive method relied on by the criminal investigator of certain Continental centers.

For example, when the warehouse of a firm of tailors was burned and the tailors claimed insurance on

a thousand pairs of trousers the method which Scotland Yard took to ascertain the fact was to search the scene of the fire for trouser buttons. As no trouser buttons were discovered they were able to say, in the direct English fashion, that the claim of the tailors was false.

And where the attempt was made to assassinate a certain unpopular minister they observed where the bullet had entered the window and the panel in the opposite wall where it had finally lodged. From these two points they drew a line extending indefinitely outside until it entered a window in a little house on the opposite side of the square. They arrested everybody lodging in this house, discovered what ones of them were identified with former crimes, and presently determined on their man.

In comparing the English system with that of other great detective centers it is important to remember this distinguishing characteristic: Scotland Yard follows only the essential clew.

In the Muswell Hill mystery they found that the criminals had left behind some housebreaking tools, together with a child's bull's eye lantern. Scotland Yard immediately seized upon the lantern as the distinguishing clew. The detectives examined it carefully and discovered that the wick was made of a piece of tartan of a peculiar color and pattern. They now abandoned everything else and endeavored to determine whether such an article or piece of tartan stuff of that character could be connected with any

old offenders known to the Metropolitan Police force. Bending every energy on this one clew, they ran it down in the family of a bad crook named Millson, whose wife had just finished a dress of this particular sort of tartan stuff.

The Germans say that dogged adherence to this one plan is the reason why Scotland Yard never was able to solve the extraordinary mystery at Battersea Park Road.

Here, on the sixteenth of July, 1910, Thomas Anderson, a strolling player, entered an unoccupied flat at nine-thirty in the evening. Some persons at supper in a neighboring flat heard two reports of a pistol. They looked out of the window and saw a man climbing over the dividing wall and disappearing into the next garden. The police were summoned. They entered the empty flat on the ground floor. There was no disorder anywhere about the flat; but on the mantelpiece of the dining room were a pair of heavy boots and a small hand bag. On the sill of the door opening into the garden Thomas Anderson was found shot to death. He wore a pair of carpet slippers and in his coat tail pocket was a deadly weapon known to the police as a life preserver. An examination of the garden wall showed that a man had climbed over not only one garden wall but four, in order to get out that way.

Now this case presented a wholly detached mystery. Why did the strolling player Anderson go to this unoccupied flat with a deadly weapon, there re-

move his boots, put on a pair of carpet slippers, and endeavor to prepare himself for some extraordinary adventure? Why did his assassin climb over four garden walls when he could just as well have entered the flat and gone out of it by the open door? Who killed Anderson? Whom did he go to kill? The thing was a vicious circle.

And there was the Waterloo Bridge mystery, with its sinister carpetbag. There was no clew, no crime, no event known to Scotland Yard that this bag related to; nevertheless it sat there on a buttress of the bridge on an October morning, the conclusive evidence of a ruthless, deliberate, cold-blooded criminal mystery. But it sat alone, like a single track in a desert. Scotland Yard never could advance. Finally an agent from the Sûreté, in Paris, connected it with the death of an Italian police spy at the hands of revolutionists in a house in Cranbourne Street, Soho.

These cases lacked the distinguishing clew without which the English method of man hunting could not be set on its way. And for this reason Continental authorities maintain that a certain class of mystery cannot be unraveled by the English system. Scotland Yard could never get started on these mysteries, and consequently they were never solved.

We are told that there used to be a picturesque old constable about London named John Shore. He was to be distinguished anywhere by his Quaker dress and his broad-brimmed shovel hat. He was one of the

experts of Scotland Yard—an old-thieves man. These experts were for a long time the only means which the department had for identifying criminals. There were certain of these persons in every division of the Metropolitan Police. It was their business to know personally all the thieves and crooks operating in that part of London.

For many years the old-thieves man was wholly relied on. If a crime was committed an essential clew was picked up in the theater of the act and the detective worked on that clew in connection with the old-thieves man of his division. Putting together characteristics of the crime and characteristics of the criminals known to the old-thieves man, a correlation was established and the mystery solved.

But crime began to be an international profession. It became a career. Various departments of it required experts, and these experts were cosmopolitan in their habits. The old-thieves man was no longer useful when the bank cracker and the assassin came on the mail boat from Paris or Holland, or on the P. & O. from India.

The finger-print system is now generally relied on. This system was invented by Robert Galton and was forced on Scotland Yard by the commissioner of police, Sir Edward Henry. It is now almost wholly relied on in the identification of criminals, not only by Scotland Yard but by every other detective department of any standing in the world.

Finger-print impressions are taken by placing the

bulb of the finger on a slab that has been thinly spread with ink. The finger is rotated, coating the ridges to the edges of the nail. After the finger has been thus inked it is rolled over white paper, beginning on one side of the nail and ending on the other. All the fingers are taken, beginning with the right thumb. To check this, plain impressions are taken by inking the four fingers and placing them all at once on a sheet of paper. It is a very simple process and can be done by anybody.

When finger-print impressions are looked for it is remembered that any smooth surface or any surface with a high polish will retain the imprint of those who touch it. In order to develop these prints, if the surface of an article is black it is treated with mercury or chalk powders; if it is white it is treated with graphite or lampblack. These powders are sprinkled over the surface and brushed gently with a delicate camel's-hair brush. For this reason criminal investigators are very careful to see that no article at the scene of a crime is touched.

In the High Street mystery Scotland Yard found a small cash box with a japanned surface. On one side of it was a blurred mark that had the appearance of a finger print. It turned out, however, that a detective sergeant had touched the box. Nevertheless, Scotland Yard experts went ahead and developed the finger prints on the box. And they were able not only to locate where the sergeant had touched it but also where the unknown assassin had touched it; and

by comparing the unknown finger prints, according to the system of classification adopted by Sir Edward Henry, they were able to put their hands on the assassin.

A recent chief of the Criminal Investigation Department of Scotland Yard, Sir Melville Macnaghten, says that on Derby Day they took the finger prints of fifty-four men at Epsom, who were arrested on the race course for various offenses. These men were arrested up to six o'clock in the evening and were to be disposed of by the court at nine-thirty the next morning. Within that time Scotland Yard detectives compared all finger prints with their files at headquarters, and when they appeared before the justices next morning they were able to show that twenty-nine of these persons were old offenders with criminal records.

He adds that on one occasion he saw a criminal on his way to Brixton Prison excoriate the papillary ridges of his thumb and fingers with a metal tag attached to his boot lace, so that his hands were awfully mutilated. Nevertheless this heroic treatment did not save him. One of the inspectors of Scotland Yard examined his hands with a magnifying glass and was able to make out all the identifying ridges on every finger. He was detained; and a little later, when his hands were healed, impressions were taken that established his identity as a notorious criminal.

The chief cites a further instance as gruesome as any to be found in Old Sleuth Series:

At day break a constable in Chesswell Street saw a man's finger impaled on a spike of a fence. It was evident that some one had attempted to scale the spiked fence, and a metal ring on his finger had caught on one of the spikes. The man had fallen and the finger had been severed. Scotland Yard took a finger-print impression of this human document and an old impression of the fingers of the hand to which it belonged was located in the files.

Some weeks later, near the Elephant and Castle public house, two men were taken up in the crowd as suspected pickpockets. One of them had his hand bandaged. He pointed out that with an injured hand such a vocation was impossible to him. But his uninjured fingers corresponded to the old impression in the files, his identity was established, and he got a year at hard labor.

In addition to this system a Tattoo and Deformity Register is usually kept by the great detective centers. This register lists criminals according to distinguishing marks on the face, hands, arms and body, but especially on the face and hands, as these are more likely to be noticed. This register has a connected index to the finger-print file. This helps to identify suspects and to locate criminals reported as having some peculiar mark or deformity. A Nickname and Alias Register is usually kept with this, in order that the police may be advised of the names by which criminals are distinguished in the underworld. Dago Frank and Lefty Louis are indicative names per-

haps more valuable for detective purposes than the correct ones.

A weekly list of habitual criminals is published by Scotland Yard, describing convicts about to be released from prison, with the names and descriptions of habitual criminals. These lists give a convict's physical aspect, his name and aliases, specialty in crime, office number, record file and finger-print form in Scotland Yard so that a complete record of the entire criminal class is available everywhere to the police in England.

However, the descriptive method of identification is not to be relied on. When Doctor Crippen and Miss LeNeve attempted to escape from England, Scotland Yard had information that a father and son had taken passage on the Montrose at Antwerp. But the description sent in from that city did not in any way correspond with the correct description of these two persons. Nevertheless the mysterious father and son were Doctor Crippen and Miss LeNeve.

And in the celebrated Beck case fifteen out of seventeen persons who had been defrauded identified Beck as the individual. He was convicted on these identifications. He was not guilty and was not the person who had accomplished the swindles. It is interesting to remember that when the English authorities released him he was paid twenty-five thousand dollars by the government as damages for his improper imprisonment—a system of compensatory justice unknown to the American courts.

Scotland Yard reminds us that it is not alone in detective fiction that one finds a striking coincidence leading to the identification of a criminal. When Mr. Briggs was killed in a compartment of a train somewhere between Fenchurch Street and Hackney a hat was picked up on the floor of the compartment. This hat was found not to fit the head of the dead man and was stamped inside with the name of a shop in Marylebone. The assassin, in his hurry to escape, had by inadvertence taken his victim's hat and left his own.

Perhaps the most incredible coincidence—too improbable for even a shilling shocker—occurred before the German Embassy, on Carlton House Terrace, in January, 1897. An assassin from the Continent, who had determined to kill one of the attachés and had made the journey to London for that purpose, appeared in the street as the attaché was leaving the embassy and began to shoot at him with a pistol. A constable on duty rushed in, whereupon the man turned about and fired.

The bullet struck the constable in the chest. But it happened that, as this day was particularly hot, the police force had been ordered to wear their summer tunics instead of their heavy coats. The constable was consequently carrying his notebook in the breast pocket of his tunic instead of the tail pocket of his heavy coat. The bullet lodged in this notebook and his life was saved. Thus, as the writers say, truth is not required to adhere to probabilities.

In the celebrated railway tragedy in 1897, known as the four-minute murder because it was done between Putney and Wandsworth, two stations four minutes apart, the assassin had used a chemist's pestle as the deadly weapon. This he attempted to get rid of by throwing it out of the window of the compartment into the River Wandle; but by accident it struck a telegraph pole and bounded back on the railroad embankment, where it was afterward picked up by the police. This furnished Scotland Yard with the distinguishing clew upon which it always relies in the investigation of crimes.

This unvarying rule of Scotland Yard to seize on the prominent clew and disregard all others is continually ridiculed by the Continental criminologists. They point out that even in the famous Crippen case the chief at Scotland Yard reported that he had two clews, where any Continental criminal investigator would have had scores.

Instead of following one or two lines Continental departments would have followed every possible line. They hold that a criminal mystery is a sort of web of indicatory clews; one or two coarse lines do not exhaust the evidences. The number of remaining lines to be discovered will depend upon the degree of minute inspection. The eye of a constable will see only the obvious one, while the trained investigator will discover the innumerable faint and inconspicuous evidences. They say that the crudity of the English system was shown in the Camden Town mystery.

Here, in the room in which the assassination occurred, the police picked up a postcard that slipped out of an old newspaper found folded in the bottom of a drawer. It was addressed to a fictitious name and contained these words:

"Phyllis darling, if it pleases you, meet me at eight-fifteen at the——" Here the writing ended and the cartoon of a rising sun was drawn on the card, signed: "Yours to a cinder, Alice."

Scotland Yard took this as the dominant clew. It was known all over England as the rising-sun postcard. The method of Scotland Yard was to photograph this postcard and have it printed in all the newspapers in the hope that the handwriting would be identified. Naturally the criminal was located at every corner by a thousand cranks, as Jack the Ripper had been located in every town of Europe. And no one was ever convicted.

There were a good many other things in this case that might have been followed. There were scraps of burnt paper covered with writing. This writing was classical in form the *e*'s resembled the Greek *epsilon*. There was an old album opened at a particular place; and a sharp instrument, with which the assassination had been accomplished, had cut the pillowcase, showing that the deed had been done in the night and while the victim was asleep. All of these clews would have been followed under any Continental system. It was crude and rough, they pointed out, merely to re-

produce the rising-sun postcard and depend on the newspapers to find the assassin.

On the other hand, Scotland Yard justifies its system on the ground that criminals must all be convicted by a jury, and that juries in England absolutely are not to be moved by metaphysical refinements.

"We define a crime roughly as a violation of the law," they say, "and not, like the Germans, as 'the product of the physiologically grounded psyche of the criminal and his environing external conditions.'"

"We engage a constable in man hunting, and not a professor of psychology."

They do not believe that a criminal can be distinguished because his temperature rises when the crime is discussed before him; or that one can put a gauge on his wrist and determine his guilt by his quickening pulse. A superintendent at Scotland Yard is very apt to smile when you tell him that Prof. Hans Gross, of the University of Gratz, asserts that what a woman suspected of crime does not say in words, or express in her features or by the movement of her hands, can always be determined by the position of her feet.

"In anger," says Gross, "when a woman cannot stamp, because that would be too expressive, she turns her soles slightly inward and makes small curves with the point on the ground. Impatience is shown by the alternating and swinging pressure of the heel and toe, repeated with increased rapidity. Defiance,

by raising the sole so that the heel only is on the floor." And a certain dangerous mental state is always indicated when the foot is put forward and the shin bone slightly stretched out, with all the toes drawn in toward the sole of the foot, like a cat when it feels good.

Nor will he believe, with Friedrich Gerstäcker, that the character of a suspect can be determined by the way he wears his hat—namely, that the honest pedantic man wears his hat set squarely on his head; the nimble-witted and pleasant wears it slightly tipped; the frivolous wears it tipped at a greater angle; the extravagant, conceited and impudent wears the hat on the back of the head; while the pessimistic wears it pressed down on the forehead.

No constable in England would bother to make such observations. They say at Scotland Yard that the common belief that a criminal in a strange country, in attempting to escape in the night, always returns to the theater of crime is not reliable; and if it were it could not be explained by the German theory that in the night the right eye sees objects on the right too small, and the left eye sees objects on the left too small. Consequently, according to the eye in control, there is a tendency in the moving person to turn in nearer to either the right or left. He travels thus in a circle either to the right or left, according to his tendency to be governed by either his right or left eye; and that this false estimate can be definitely

ascertained to be from three to seven tenths of one per cent.

Scotland Yard insists that a sensible constable of long experience is more apt to locate a criminal in a man hunt than a laboratory specialist is. They say that, though they may have failed to solve the criminal mysteries in the cases indicated by the German critics, they would be entirely incapable of the blunder of the Teuton criminologists in the Austrian Peasant case.

One morning, in a tributary of the Danube, the police found a body horribly mutilated. The hands, feet and head had been removed, and the entire trunk and extremities flayed. It had been sewed up in a sack after the hideous crime and thrown into the river, in the belief that this mutilation would completely prevent identification.

It was taken before the proper authorities and the professors sent for. They examined the body and reported that, from its muscular development, it was evidently a peasant of about sixty years of age. The examination of the contents of the stomach showed that it was filled with masticated bark. This was a disturbing and significant evidence. The condition of the body annulled a starvation theory and the professors finally declared that the peasant had been insane.

They analyzed the bark and determined that it came from the forest of a certain nobleman whose estates were a few miles above the point on the river where

the floating body had been picked up. The nobleman was summoned to appear. When he arrived the mystery departed. He had killed a bear in the forest removed the head and pelt, and ordered the forester to bury the carcass; but, instead, he had sown it up in a sack and thrown it into the river.

The whole active force of Scotland Yard are practical policemen. They are not recruited from London. They come almost wholly from the country districts outside. The authorities prefer to have these new men, they say, directly from the plow, so that they have no interest in or relation to any city affair. They are trained in the regular metropolitan force and finally, if efficient, are assigned to the detective department.

Scotland Yard is a close, independent organization. It is not accountable to the London public. It cannot be controlled by it. It is little subject to the pressure of public opinion. It is entirely under the control of a commissioner, who is responsible alone to the Home Secretary. The people of London are not able to force explanations from Scotland Yard. The commissioner does not permit himself to be interrogated. No attacks are ever answered; no attempt is made to correct reports in the newspapers; no official ever gives out a statement for publication.

The expenditures of the department are not ever subject to public review. It happens, therefore, that Scotland Yard does not change and is not inconvenienced by change in administration. It is able to go

ahead undisturbed with its work and to preserve a continuity in its investigations impossible to any public-detective center of the United States.

Scotland Yard's greatest difficulty in a man hunt is with the Continental criminal.

According to diplomatic custom it cannot communicate directly with the detective department in any foreign country. All communications must be made first to the foreign minister, who in turn communicates with the ambassador in London for his country. This ambassador takes the matter up with the British Secretary for Foreign Affairs, who finally turns it over to the Home Secretary, where it at last, in this roundabout method, reaches Scotland Yard. This very greatly complicates all criminal investigation attached to foreign affairs.

These international cases are the most incredible with which the detective centers have to contend.

A late chief of the Criminal Investigation Department of Scotland Yard says that one Sunday a physician of very high standing brought him the most extraordinary letter he ever saw. It had been picked up back of Portland Place and was written from the Chinese Embassy in London. The envelope requested the finder to take it at once to the physician's address. A hostler, who picked it up, carried out that direction.

The envelope contained a letter from Mr. Sun Yat Sen, Chinese reformer, (later president of the Chinese Republic), saying that he had been kid-

naped as he passed the Chinese Embassy and was now confined within it; that the intention on the part of the Chinese officials was to drug him, convey him to the dock and ship him to China; that, being in the embassy he was constructively on Chinese territory and could not be interfered with by the English authorities; that if any difficulty should arise, as they had extraterritorial authority over him, the Chinese would promptly decapitate him and end the controversy.

This communication seemed wholly incredible. Nevertheless it was precisely true. Mr. Sun Yat Sen was, in fact, a prisoner in the embassy; and it was only after long negotiations of great diplomatic delicacy that the Home Office was able to obtain his release.

Scotland Yard's method of arrest is usually direct; it is rarely by ruse or finesse. Once the man hunt is ended and the quarry rounded up, the constables force in and seize him. It is a method unusually dangerous.

Take, for example, the Houndsditch affair, in December, 1910. Here four desperate foreign cracksmen entered a house adjoining a jeweler's shop. They were at work with a crowbar, forcing the wall, when sounds were detected and the police notified. When they attempted to force the door the cracksmen emptied their pistols into the group of constables on the steps.

These desperadoes were afterward located in the second story of a house in Sidney Street. Here they

were besieged for a whole day, not only by the police force but also by a detachment of the First Battalion of the Scots Guards, and the house finally burned to the ground.

The police of New York were greatly amused at this all-day siege in the heart of London. But Scotland Yard showed by statistics that one was more apt to be shot on Broadway than in the province of Chihuahua during a Mexican revolution.

These Lithuanian desperadoes gave Scotland Yard no end of trouble; they were only to be taken after a pitched battle or running fight. If the final drama that began at Cheshunt Road, Tottenham, had come under the eye of an American spectator he would have believed that an enterprising motion-picture director was staging a thrilling "chase." About ninety-three one Thursday morning a cashier got out of a motor car, with the wages for his factory employees in a bag. He was accompanied only by the chauffeur. Two men rushed out, fired several shots, snatched the bag of money and ran away with it.

Both of the robbers were armed. Several persons were winged and fell out of the man hunt. Presently the police from a neighboring station joined in and the running fight advanced along the bank of the River Lea. When the robbers reached Chingford Road they found a street car. They covered the motorman and conductor with their pistols and compelled them to drive on. The police got a pony cart and followed. The robbers shot the pony.

Presently another street car approached from the opposite direction; the police commandeered it, reversed it, and the chase continued. The two cars went away madly on parallel tracks, the robbers in one, the police in the other. Finally the robbers abandoned their car as the police car began to overtake them and made off in the direction of Woodford, where at last in the depths of Epping Forest they died like the cornered heroes of a Yellow Saga.

This system of man hunting by hue and cry is apt to be a costly method. Like the direct form of arrest by forcible entry, it drives the trapped quarry into a resistance that otherwise he might have hesitated to present. This direct action and the method of following only the dominant clew are the distinguishing characteristics of Scotland Yard. They are illustrative of the English mind, which seizes only essential factors and drives through to its object on the shortest line.

So it happens that one finds the records of criminal trials crowded with convictions based on a single paramount item of circumstantial evidence, as in the Blight mystery, which Sir Ashley Cooper cleared up by showing that the assassin was left-handed; and the great Humphreys fraud, when a charter granted by Charles I to the Earl of Stirling was shown to be spurious because it contained margins in red ink, when red ink was not in use before 1780 in England.

We shall see how this method of Scotland Yard compares with that of other great detective centers.

CHAPTER II

FRENCH METHODS OF CRIMINAL INVESTIGATION

WHEN an authority on criminal psychology at Gottingen printed his learned thesis on the fourth dimension, the Prefect of Police of Paris sent him word that, though the existence of the fourth dimension might be involved in doubt, if the professor would come to France he would take great pleasure in showing him a thing that had only two dimensions. The criminologist replied that the invitation of the Prefect was courteous, but his suggestion unthinkable. One could postulate a fourth dimension, but by no possible effort was the human consciousness able to imagine a thing of two dimensions alone. Length, breadth and thickness were essential to all mental concepts of the material world.

The Prefect renewed his invitation and the criminologist traveled to Paris. Whereupon, on a bright sunny morning, he was taken up the Champs Elysees and shown the shadow of the Arc de Triomphe! It lay in the brilliant sun, clearly defined in its length and breadth, but not even a psychologist from Gottingen could discover that it possessed any thickness.

This instance illumines the facile working of the Latin mind.

The Germans say that the Detective Bureau of Paris follows the eccentric method. Scotland Yard calls it a system of inspiration. It ought, in fact, to be called the diplomatic system. We shall see that the Service de la Sûreté does not follow the one method of Scotland Yard, to find a distinguishing clew and center its whole intelligence on that one line in a mystery inquiry; nor yet the scientific method of Berlin; nor the psychological method of Vienna.

Paris is the only romantic city remaining in the world. It is a rendezvous of all the soldiers of fortune, the adventurers, and flying squadrons of picturesque undésirables. With some knowledge of the French temperament one can understand why the department of criminal investigation in Paris could be expected to use a certain diplomacy in its romantic man hunting.

When Scotland Yard undertook to arrest the mysterious Lett bank crackers in a direct raid, by forcing in the door, they were met with a hail of bullets and more than one constable was mortally injured. But when a detective agent of the *Centre* in Paris wished to secure the desperate criminal Boucher, alias Poignon, who had taken refuge in a lawless quarter of Montmartre, he called upon him alone and unarmed, and asked him to have a glass of wine. As they sat over the bottle the agent said:

“My dear Boucher, I have just lodged in : he

guardhouse a person whom I suspect of being the notorious coiner, Duclose; but I am not certain. I said to myself: '*Parbleu*, if there is a man in France who will know everybody in the underworld, it is Boucher. I shall ask him to look at this suspect and tell me if I am right.' "

Now it is a strange fact, asserted by every French authority, that all crooks consider themselves highly complimented if they are consulted by the police. Nearly every one of them will go to any length to assist the police against another if it happens that the criminal sought is not a direct ally. "Those who fear the police most," Vidocq used to say, "are always the ones most ready to serve it." Boucher went willingly. The agent led him into a cell of the prison, stepped quickly outside, locked the door, and thanked him for his courtesy.

Like Scotland Yard, in London, the Detective Bureau of Paris is a division of the city police. It is not under the control of the people of Paris. It is an organization directly under the authority of the national government. The Prefect is appointed by the President of the Republic. The detective force is not centralized, as in the Germanic cities, nor is it entirely divided as in London. There is a combination of these two methods of organization.

For police purposes Paris is divided into ten districts, each in charge of a *commissaire*. The detectives in each of these districts are under the control of the *commissaire*; so that, instead of having some

five or six hundred detectives operating from a center, as the system used to be, some fifty detectives in each of ten districts are now available. In addition to this decentralized plan there is a staff of detectives attached to the main headquarters, consisting of some two hundred and fifty men who are assigned to important and complicated criminal mysteries, cases of international concern, and involved affairs likely to cover a broad field of investigation. This central force is divided into bureaus, with special detectives skilled along certain lines of criminal investigation. M. Bertillon was at the head of one of these bureaus up to the time of his death.

It was Bertillon who first foresaw that the identification by photograph was doubtful and unsatisfactory. These photographs accumulated. The authorities of Budapest, alone, maintain a cabinet containing photographs of over a million criminals. Disguise could be too cleverly effected to render this system certain. Besides, an Austrian authority had discovered by a series of experiments that all persons do not look at photographs in the same way. Some persons take the details of the background as the essential distinguishing features of the picture, while others see the thing to be photographed independent of the background. For this reason the police can never be certain that even well-intentioned persons will be able to identify an individual.

Bertillon endeavored to find some better method of identification, and finally worked out the anthropo-

metric system, which was based upon the accurate measurements of certain bony structures which were supposed not to change from maturity to the end of life. He became famous for this system and it was in general use in Paris. But the measurements were difficult to take and could not be relied on unless they were the work of experts, and finally the famous theft of the Mona Lisa brought it into lasting disrepute.

Scotland Yard and the detective centers of the Germanic Empires declare that if the Mona Lisa had been stolen within their jurisdictions they could have identified the criminal within half an hour after the picture had been removed from the frame. This boast was wholly justified. The thief left finger-print impressions on the frame. These finger-print impressions were developed by the Parisian police according to the usual method. But unfortunately the Bureau in Paris was depending on the Bertillon method and not on the system of classification of finger prints adopted by Sir Edward Henry.

They were unable to identify the finger prints on the frame. The notorious Perugia, who accomplished this famous robbery, was not a new man. He had been in custody in Paris and his finger prints had been taken. If there had been in use at that time a proper system of classification the finger prints on the frame could have been identified as those of Perugia, and almost immediately the man would have been in the custody of the police.

Paris is the Bagdad of wonderful criminal adven-

tures equaling the apocryphal adventures of any Arabian story. The truth accurately set down by the reliable head of the detective department seems to the Anglo-Saxon colored and romantic.

The *Lapin Blanc*, a tavern in the *Rue Aux Feves*, was one of these mysterious centers of the intriguing underworld of Europe. It was a long, low room with black, smoky rafters. In it were six tables fastened to the white washed wall so they could not be thrown over or moved from their places. These tables were before a long counter covered with zinc. On this counter were innumerable cups or jugs chained fast. The benches before the tables were chained to the wall.

In order to obtain a certain international clew the Chief of Police of Paris went one night in disguise to this place. When he entered he saw a man standing at the counter wearing an otter-skin cap, the visor of which concealed his face. About at the tables were Apaches playing cards. They were all armed, with their weapons ready in the event that any player should undertake to win by a trick. When the Chief entered, Nina Florette, an actress of the subterranean cabarets seated at a table instantly knew him in spite of his disguise and shouted his name. The whole nest of cutthroats rose. But the man in the otter-skin cap turned about and addressed the Prefect:

"Monsieur," he said, "you are at liberty to go if you please; you shall not be disturbed."

And the astonished Chief tells us that this mysteri-

ous person in the otter-skin cap was a lineal descendant of the old royal family of France, who, in spite of every republican effort, still remained king in a certain circle of Paris.

One of the most annoying classes of persons with which the Parisian police have to deal are the receivers of stolen goods. There used to be in Paris a certain famous dealer in antiques. For a long time the detective department had had him under their eye. They were practically certain that he was what is commonly called a "fence." But, in spite of all their diligent efforts, they were never able to connect him with any criminal transaction or to discover any stolen property in his shop. The man was able and clever. Nevertheless, moved by this inspiration, which Scotland Yard credits to the Service de la Sûreté, they undertook to make a test case according to the diplomatic method.

One morning, as this dealer was walking toward his shop he was stopped by an agent of the police, who addressed him in a name not his own. He replied that the agent was mistaken; he was a certain person having a shop at a certain number and well known in Paris. But the police agent was insistent. He said that this shopkeeper was the man he wanted under the name he gave. The shopkeeper protested, and finally the agent said: "We will enter this fiacre and drive to the police headquarters. There this question of identification can be settled."

The shopkeeper was quite willing and the two men

went to the central detective bureau. Here the shopkeeper was examined, not in the hope of finding stolen articles on his person but for another reason. Among the articles taken from the man's person was a handkerchief embroidered with his name.

The police agent took the handkerchief, disguised himself as a messenger, entered a cab, drove in great haste to the antique dealer's shop and demanded to speak with his wife. There were several persons present in the shop. The pretended messenger signified that the matter on which he came was important and urgent, and he must speak with her in confidence. And he produced the leader's handkerchief in evidence of this assurance. The anxiety of the woman was evident. She led the messenger into the back of the shop and begged him to tell the errand on which he came.

"Madam," said the agent in a whisper, "your husband has just been arrested, and from some words which he happened to overhear he suspects that he has been betrayed; he, therefore, wishes you at once to take out of the shop everything that would be dangerous to his safety if found here by the police. But you must hurry. The police will be here in a short time. You have not a moment to lose. Can I help you?"

The woman was alarmed, but she acted quickly. She asked the messenger to call two closed cabs. When they were before the door she opened a secret closet the entrance to which was cleverly concealed

by a large press so skillfully set in that no one would ever suspect that it stood other than against the solid wall of the shop. From this she took clocks, candelabra, Etruscan vases, cloths, cashmeres, linens, muslins, bronzes—the elegant and priceless loot of the finest houses in Paris. These were bundled up and put into the two cabs. The woman got into one and the obliging messenger into the other. As they set out from the shop the messenger pulled up the curtain of the window in his cab—a prearranged signal—and they were immediately taken into custody by the police.

By a like system of clever intrigue the police brought to ruin the famous dealer in stolen goods at the Rue de la Sonniere.

The apartments of a general in the Hôtel de Valois, in the Rue de Richelieu, had been entered and looted. The general had dined, not wisely but too well, on a certain summer evening. He had been able to get up to his apartments. There he had opened all the windows and gone to bed in his evening clothes, with no further concern. These were generous considerations for the second-story men in Paris. They entered through the open windows and carried out practically everything in the apartments except the general. The French police said that the thing was so complete that it reminded them of a Provençal notary making an inventory after death! They thought the booty had been disposed of through the fence at the Rue de la Sonniere. They did not arrest the

fence and search his shop as Scotland Yard would have done. But they approached him by the method diplomatic.

A stool pigeon from the family of common crooks sauntered into the shop, conversed on various topics, and finally touched on the robbery.

"*Tiens*," said the fence; "nothing of importance ever happens nowadays."

"I do not know about that," said the spy. "The man who pulled off the affair at the Hôtel de Valois had a pretty good streak of luck; there was twenty-five thousand francs in bank notes in the pocket of the general's full-dress uniform."

Immediately the face of the dealer in stolen goods changed.

"*Mon Dieu!*" he said. "Is it possible!"

"What's the matter," said the spy—"did you buy it?"

"Yes," said the man; "but I sold it again."

"Do you know who has it now?"

"Yes," said the dealer; "a man in the Rue Faydeau. He intends to melt up the gold lace."

The spy cried out in astonishment:

"Burn up twenty-five thousand francs! Jump into a cab; perhaps you can get it before it is put into the melting pot."

The dealer in stolen goods immediately summoned a cab, hurried to the shop of the man in the Rue Faydeau, repurchased the uniform, returned with it, and just as he was about to cut it to find the fabulous roll

of bank notes the police appeared and seized him.

One is constantly impressed with the ingenuity shown by the Parisian authorities. They seem always to have at hand some diplomatic way in which an affair can be handled. One does not find the direct, crude methods of the Scotland Yard constable.

There was a member of the detective force in Paris who was suspected of being in league with a gang of second-story burglars. A house on the Boulevard St. Martin was entered and looted. It was a wet night and the police found footprints under a window. One of the detective agents was of the opinion that these were the footprints of the suspected Hotot.

The problem was how to verify this impression without putting the man on his guard.

It was very early in the morning. The special agent in charge of the affair went into a café, purchased a roast fowl, a pot of coffee, some rolls, and the like, and took them up to the suspected man's house. He waked him and told him he had come to take breakfast with him. He entered, with the breakfast and an assistant. The suspected man was in bed. The agent asked him to remain in bed and join in the breakfast. And while they were thus engaged the agent's assistant secured the suspected man's shoes, took them out, made impressions of them, and put them back. In no other country would the authorities have resorted to such a stratagem.

The great jeweler shops on the Rue de la Paix complained to the Prefect of Police that the wife

of a prominent attaché of a foreign embassy was systematically robbing them by a method of shoplifting. Her plan was to have a great many articles laid before her, then to direct the attention of the clerk to some distant object she wished to examine and, when he turned, to secrete some one of the small articles. She would then leave the shop. The great jewelers knew who she was; they had evidence of her acts, but on account of the standing of her husband they hesitated to undertake to arrest her. However, they wished to be paid for the articles which they had lost and to bring the woman to the realization of the fact that her thefts were known. They went to the Prefect of Police with the problem.

This would seem a difficult case to manage, but the Prefect of Paris handled it with consummate skill.

He caused the woman and her husband to be invited to dinner at the house of an official connected with the department. At the close of the dinner, by inadvertence, the man seated by the suspected woman spilled a cup of coffee on her gown. The hostess at once led her out of the dining room and upstairs to a bedchamber. Before the mirror in this room there were a number of elegant toilet articles, and especially a tray on which, in confusion, were scores of exquisite scarf pins, like a heap of matches. The hostess went out and closed the door, leaving the suspected woman in the room.

The Prefect knew that the woman could not go out before she had looked in the mirror.

She presently went over to it. There the profusion of beautiful scarf pins provided by the jewelers in the Rue de la Paix attracted her attention. Among so many thus carelessly heaped together she was certain one or two would not be missed. She selected several of them that especially pleased her, and was pinning them inside of the hem of her evening dress when the door opened and the Prefect of Police, with the defrauded jewelers, entered. The shoplifting ceased after that and the jewelers' accounts were paid.

There was a dangerous crook in Paris, Clair Raoul, who was taken up on suspicion of a recent robbery, which they fitted to Raoul but they were not precisely certain. One night an agent went into the cell where Raoul was sleeping, sat down beside him, and wrote out with a pencil on a pad precisely the exact details of the crime. Then, as he continued to write, he managed to wake the sleeping man.

"What are you doing here?" said the suspect.

"Monsieur," replied the agent, "I have just been taking down your confession. You have been talking in your sleep. I have here from your own lips a complete statement of your crime." And he read what he had written.

The amazed man found the statements so exact that he did not doubt their origin, and he finally signed the confession.

It must be remembered that Continental detective centers have an advantage over Scotland Yard in that it is perfectly legal for them to resort to what we

call the "third degree." A suspected person is always brought before the authorities and questioned—"sweated," as we say. He is forced to explain his suspected acts. His interrogation is not limited by any nice rules of criminal procedure which so effectually chain up an English or an American investigator.

One is always reminded of the police judge in Paris who used to say:

"Formerly there was something good about English justice—it had torture at its command."

They have a method in Paris of reconstructing the crime in the presence of the accused. With great skill and dramatic effect they reproduce precisely the manner in which the act, especially homicide, has been effected. This not only furnishes the detectives with exact data to begin their investigation but the visual effect upon the suspected criminal is often dramatic and overpowering. By this method, embraced in what we call the third degree, foreign detective centers do not hesitate to force the suspected criminal to a confession.

It must not be imagined that Paris agents do not use at times the same direct deductive methods as Scotland Yard.

A judge of the Imperial Court went, on a Saturday, to spend the week end at his country seat in the Department of the Aube and to receive his rents. He started to return. When the train arrived in Paris his dead body was found in the compartment. The

Prefect of Police was at once summoned. It was certain that the man had been assassinated in the railway carriage and that the assassin had managed to leave the train. The Prefect's first inquiry was to determine how long the judge had been dead. A skillful surgeon, immediately summoned, was able to show by physical evidences that the man had been dead only a few minutes.

It was, therefore, evident that the assassination had been accomplished as the train entered Paris.

He then determined at what point, as the train entered Paris, its speed first slackened. He went to that place, examined it carefully, and finally picked up a snuffbox and a woolen muffler. The train had not stopped; the assassin had evidently been compelled to jump; he was perhaps thrown down by the velocity of the train and these articles were lost. The Prefect had these articles examined by experts in order to determine where they were manufactured. He discovered that the snuffbox was produced in a certain region of the Black Forest and that such mufflers were woven only in one factory in Mülhausen. It was now certain that the assassin was an Alsatian.

The experts tell us that criminals are confirmed specialists. They adhere to their line. One who kills with a knife will continue to kill with a knife. The burglar remains a burglar, the pickpocket a pickpocket. They do not change. The Chief of Police examined the criminal records for a similar case, and he discovered that on the eighteenth of a previous

September an Alsatian named Jud, a deserter from the Third Dragoon Regiment, had killed a Russian army surgeon in a railway carriage between Zilisheim and Ilfurth by shooting him through the head with a revolver. The Prefect was now certain that this Alsatian, Jud, was the one who had shot the judge to death. And this deduction proved to be exactly correct.

A delightful diplomacy is the distinguishing characteristic of the French detective.

There used to be a famous police spy in Paris. He was one of the most extraordinary detective sleuths of which we have any accurate knowledge. He had been in his youth wholly associated with criminals and had turned from them to the service of the detective department. The adventurers of the subterranean world on the Continent determined to get rid of him. They sent a notorious assassin to Paris to kill him. When this came to the knowledge of the agent, instead of taking precautions as any ordinary person would have done, he disguised himself as an Apache and went to the café where the assassin, who had just entered Paris, was lodged.

It was night, and the man was eating his dinner at a little table.

The agent, now to the eye a common Apache, sauntered in. He went at once to the man at the table and asked him for a cigarette. The man, whose name was Gueuvive, alias Constantin, called in the underworld Antin, looked very carefully at the Apache.

He gave him the tobacco and asked him if he had ever been in the army. The Apache replied that he had and began to talk about military affairs. He hinted that he was a deserter and that, in fact, all the organized authorities of France were his enemies.

An ordinary detective could not have played this part. But as the disguised agent had been, in fact, in his youth an associate of all sorts of crooks, it was not difficult for him to convince Antin that he was one of the brotherhood. The result was that he so completely established himself in the confidence of the assassin that he finally drew from him his purpose in Paris. The Apache instantly said he knew this agent better than anybody else, his habits, his residence, and that he would join the adventure. And so it came about that the very man whom the assassin Gueuvive had journeyed to Paris to kill waited with him night after night, in the Rue Neuve St. François, before the door of his own house, in order to help assassinate himself. And night after night the police agent, thus engaged in an attempt to assassinate himself, encouraged Antin to wait a little longer and take a little greater care!

It is not possible to imagine a constable inspector of Scotland Yard or a stolid agent of Berlin engaging in a piece of such splendid foolery. But it is in line with the French character and it was as effective as any method that could have been devised. When this assassin was arrested he became the laughingstock of Paris; and ridicule in a Latin country, even in

the circle of thieves and rascals, is a deadly weapon.

At a time of political unrest in Paris there was a celebrated agitator named Raspail. He was the head of certain dangerous secret societies, the editor of an incendiary newspaper, and a person highly dangerous at that time to the peace of the city. He held himself out as a direct, implacable enemy of all law and order, and the champion of a new commune.

It was a question of how to deal with him.

He courted arrest. He wished to pose as a martyr. He would play the rôle of hero. Now, the government did not wish him to pose as a persecuted champion, and they proceeded to act in line with their usual delightful diplomatic methods.

One morning the agitator received a huge official envelope. He supposed it was an order for his arrest and the suppression of his journal. But when he opened it he was amazed to see that it was a state document confirming his appointment as Chevalier of the Legion of Honor. He had hardly read it, in astonishment, when, taking up the other Paris papers, he saw they contained elaborate notices of his selection and appointment to this distinguished order—out of regard, as Paris was told, for his conspicuous acts in the service of the state! He rushed to the authorities to decline the distinction. But everywhere he was met with profound courtesy, elaborate compliments and a reiteration of his esteemed services, which, he was told, no government could overlook.

And all the time every paper in Paris with which

the government had any influence continued to compliment him on the distinction, and to welcome him on the side of law and order as against the secret societies and nihilistic congresses of which he had theretofore been champion.

The trick was turned with complete and overwhelming success.

It was in vain that the man protested and endeavored to explain his position to his associates. He was wholly ruined. His confrères of the underworld could never be made to believe that he was not always in league with the authorities, and that the Cross of the Legion of Honor was not in truth a compensation for his treachery to them.

But the crooks themselves sometimes hoist the police with their own ingenious petard. Swindling and forgery are constantly going on in Paris. The total of the forged notes brought in a single year to the Bank of France is said to amount to not less than half a million dollars. It happened that the Chief of Police was looking for a noted forger. He was thought to be hiding in the Latin Quarter, pretending to be a rich student and spending his evenings at the Café Mazarin.

Paris is always mad over somebody. Just then it was a celebrated poet whose songs were everywhere, and for the moment he was the most famous person in the world. As it happened, the Chief of Police resembled this poet. He went on a certain night to the Café Mazarin to pick up the rich student. There

was a dance in the café. It was crowded with the students and their sweethearts. The Chief saw his man at the end of the room. He was a dark-skinned, handsome fellow, brazen and cynical. The Chief knew when he entered that he had the crook cornered. There was no way he could escape, and he advanced from the door toward him. He saw, also, by the change in the man's face that he was recognized.

The café was filled with people, girls and students everywhere, and when the Chief of Police was half-way to his man in the crowd he saw the forger whisper something to his companion. The girl immediately sprang up, pointed to the Chief of Police and shouted the name of the poet whom he resembled. The poet was the idol of the moment. Dozens of voices took up the cry and immediately the Chief of Police was surrounded and hemmed in by an admiring crowd, from which it was impossible for him to escape. And long before he could extricate himself with his explanations the shrewd crook had disappeared.

Other nations are inclined to deprecate these methods. Scotland Yard used to assume a superior air about them, and the French would reply by saying that the author of Sherlock Holmes had very properly used the detective constable as a foil in his stories. The English authorities did well to follow only the large, obvious clew, since they were in no wise fitted to handle any other. It is foolhardy business to cross wits with the French!

The criminologists of the great Teutonic centers

are constantly pointing out that the method of the French detective service is not scientific. It does not make those careful verifications which a scientific method requires. Its data are not accurate and minute. These criminologists say that the state of mind of a criminal is always to be carefully observed. When a suspect is producing false narratives he is very apt to make a gesture which does not correspond with his words. This gesture tends to show the subconscious instinct of the individual to state the truth rather than falsehood. Thus, sometimes when a criminal, in a false statement, is speaking of the east, he will imperceptibly gesture in the opposite direction. With exceeding patience they have ascertained certain tendencies of the consciousness; as, for example, that one in fatigue or in the first stages of drowsiness, in counting the ticking of a clock, will always count it one unit too many. They constantly advise the French authorities to adopt, in a closer degree, these scientific methods of test on the criminal consciousness.

And the delightful French reply with a parable:

A professor of criminal psychology, of Prussia, was on his way to visit an equally noted savant at Lausanne. The professor was accompanied by his assistant. As they passed a little station on the Swiss border a big old baggage master was stooping over the platform gathering up some grains of barley that had escaped from a torn bag; whereupon the myopic professor called the attention of his assistant to the

baggage master in this peculiar posture, and said:
“Look at the beautiful Newfoundland dog.”

The French say that they can understand why the criminologist took the baggage master in that posture for a Newfoundland dog, because at that moment he was reading a brochure on St. Johns as a submarine naval base; but they are wholly unable to grasp the intricate German mental process by which he arrived at the conclusion that it was a *beautiful* Newfoundland dog!

CHAPTER III

GERMAN SCIENCE OF CRIME DETECTION

MONSIEUR DUPIN, Poe's famous detective, or his echo, Sherlock Holmes, suggested in one of his deductive reflections that if ever he should have a little leisure he would prepare a brochure on ash. He intended to impress the reader with a method of criminal investigation of an incredible minuteness.

This suggestion was a fancy of the detective writer. But it is no fancy to the criminal investigator in Germany.

The experiments of Habermann have demonstrated that all sorts of important facts are to be obtained from an investigation of ash discovered at the theater of a crime or connected with a criminal agent. Writings in inks having an iron base appear as distinguishable reddish marks on the white ash of the paper. Pencil marks become visible where the heat is not intense enough to destroy the graphite on the ash. The writing of a blue pencil can be easily traced, that of a red pencil is usually burned away. Habermann discovered in his experiments that the essential feature in examining burned paper was to obtain a

- white ash that would hold together. The usual papers, on account of the fact that they contain quantities of clay, are specially adapted to this purpose. Rag papers are the poorest. He found, however, that rag papers could be made to keep their form after burning if one side of the sheet was covered with a mineral solution.

A burned document or scraps of charred paper are not lost evidence. A specialist in the great laboratory in Berlin will be able to say where the paper was made, what sort it was, what form of writing it contained and in what inks. He will fasten it firmly together by applying a collodion coat to one side of the ash. If it is charred he will reburn it until the ash is a white field showing shrunken, distorted letters. These letters he will enlarge by a photographic process, and in the end all the facts which the criminal agent undertook to destroy will appear against him through a scientific resurrection.

Criminal investigation in Germany follows the national policy of an extreme centralization.

Every phase of detective work is undertaken by a specialist along a particular line. An investigation is not carried out by a general-purpose constable, as at Scotland Yard. It is conducted by an officer accompanied by a corps of experts. The "murder board" is an original German idea. A homicide mystery is investigated by one of the murder boards from the detective center. This board will consist of a photographer, a surgeon, a chemist, experts on

bloodstains and finger prints, some one having experience in taking molds of footprints, marks of burglar tools, and so forth. These murder boards, commissions or squads are always available under the German system. Each of these squads is given a criminal mystery to work out. It cannot be put on a second mystery until the first is either solved or abandoned.

The advantage of such a system is at once apparent. It means that a thorough, minute, scientific examination will be made at the theater of a crime, and that each succeeding step will be comprehensive.

The German idea is that a mystery should be examined from the center out. It is an ever-widening circle, and if the investigation moves outward always in an increasing arc a solution, in the end, is inevitable. The thing is merely a question of scientific examination. Every resource of science is brought to the aid of a criminal investigation through the great laboratories in Berlin and other German cities devoted to the uses of the detective departments of the imperial police.

The Baron X is found stabbed to death in a field of his estate. A suspect is picked up in a neighboring village and a knife is found in his possession. The local expert on the murder squad is unable to find any bloodstain on the knife, but he sends it to the laboratory in Berlin. Here the dirt round the base of the blade, where it is set into the handle, is analyzed, and the chemist is able to report that the knife had

been cleaned by thrusting it into the ground, and that his analysis corresponds to the analysis of the soil of the field near the body of the murdered Baron X!

A German criminologist says that a coat was picked up at the scene of a crime. The detective department wished to know the trade of the unknown person to whom this coat belonged. It was turned over to a scientific department, and they very quickly reported that it was a joiner's coat.

Their method was to put the garment in a paper bag carefully gummed up so it would be dustproof. The paper bag was then beaten. It was opened, the coat removed and the dust analyzed. This dust showed finely pulverized wood fiber.

Now, if no other elements had been discovered except the pulverized wood fiber the investigator would have reported the owner to be some sort of worker in wood. But among the wood fiber bits of glue were discovered, and the laboratory was able to report that the worker in wood was a joiner.

He also says that among the evidences found at the scene of a murder assault the police picked up a cap. A minute microscopical examination developed nothing except the presence of two hairs in his cap. Nevertheless out of these trivial evidences the scientists were able to furnish the police with a very good working description of the assassin:

"A man of middle age, of robust constitution, black hair intermingled with gray, recently cut, commencing to grow bald."

This sounds like Sherlock Holmes after a hypodermic, but it is on the authority of a noted criminologist and cited by Fosdick.

To the German analyst hair is packed with information. The approximate age and physical condition can be constructed by an examination of a single hair. The hair of every animal has certain distinguishing characteristics. It is not to be mistaken by a competent investigator. Some animals, as for example the cow, have three types of hair. These will be known by their structure. Under a proper microscopical examination hairs will be as easily distinguished by an expert as varieties of trees in a grove will be distinguished by a forester.

There was a case in which a dagger found on the prisoner had a few short hairs caught entangled in a nick of the blade. He explained this by saying that he had used the dagger to kill a rabbit that he had found trapped in a hedge. The authorities reported to the police, after an examination of the dagger, that the hairs were not of human origin, but they also added that they were not rabbit hairs—they were squirrel hairs. The police were extremely puzzled until they finally discovered that on the night of the homicide the prisoner had worn a greatcoat trimmed with squirrel fur. He had, in fact, carefully washed the knife after the assassination and thereby removed every evidence of his act; but unfortunately for him he made the mistake of attempting to dry the dagger by wiping it on the fur lining of his greatcoat.

The German authorities have carefully studied the manner and habits of the average person in observing an event. The physical senses are conspicuously inaccurate. A casual observer does not make a correct estimate. Innumerable data along this line are at the service of a criminal investigator. He is thereby enabled to say whether the suspect or the witness, in describing an event, is telling the truth or presenting a series of false observations.

For example, a swiftly moving express train of great length appears short to the observer, while lines of marching men appear of great length. A stick of red sealing wax drawn across the eyes is seen as black. In a fog all objects seem greatly enlarged; a horse or an individual suddenly appearing near the observer strikes him as of gigantic proportions. Things seen at certain distances above the eye are incorrectly estimated by the normal person, therefore an accurate estimate would show premeditation and preparation for the inquiry.

Precisely how much one can see by moonlight has been time and again a vital factor in a criminal trial. Witnesses are constantly testifying to degrees of vision; as, for example, their ability to recognize persons at certain distances by moonlight. The Germans have definitely tested this question.

Helmholtz has determined that the power of the full moon is precisely that of one candle at a distance of twelve feet. Long series of experiments by other investigators demonstrated that an individual might

be recognized, if the moon is in the first quarter, at a distance of from two to six meters.

Under an ordinary full moon he could be recognized at a distance of from seven to ten meters, and under the brightest full moon not farther than from fifteen to sixteen meters.

This is important information. It not only confounds the false observer, but it aids with the honest witness. Everybody connected with the practical administration of justice knows the common tendency of the witness to bring his imagination to his aid in all questions of identification. With such definite data one is able to tell how much the observer has actually seen and how much is unconscious imagination.

This tendency to rely on the imagination is conspicuous in descriptions of injuries. Germanic criminologists declare that no one can remember and, therefore, no one can describe the sensation of a great pain. They assert that all shot and stab wounds are felt at the time as a sensation of being pushed. Thus it happens that a man who has been, in fact, stabbed will believe that he has only been violently pushed by his assailant.

Another disputed question has been seriously taken up by the German authorities: How far is one able to recognize an assailant in the dark by the flash of a weapon? The testimony of witnesses on this point has been widely divergent. American and English courts have held backward and forward on it. Instances are constantly presented. In an early

English case a man was driving along through the country in the night when he was suddenly attacked by an assassin. The assassin stood close to the road and fired as his intended victim approached. The wounded man swore at the trial that the flash of the weapon gave sufficient light for him to distinguish the features of the assassin. He was positive in his statement, but the prisoner was not convicted.

In a still earlier case an officer from Bow Street, together with some others, was on Hounslow Heath in the night, when they were attacked by highwaymen. They were traveling in a coach and it was very dark. One of the highwaymen fired on the coach. The officer testified at the trial that the flash of the pistol gave sufficient light to enable him not only to recognize the highwayman who fired the pistol but also to see the color of the horse and the peculiarity of the highwayman's dress. He was afterward able to recognize this horse, not only by its color but by the structure of its head and shoulders. In this case the court accepted the truth of this observation and the highwayman was convicted.

Later a case arose in which a woman testified she recognized her assailant by the flash of a weapon. The court ordered experiments to be conducted. The report on these experiments was that such pretended recognition by the flash of weapons ought not to be accepted. Nevertheless, cases continued to come up, and it seemed to be the best opinion that in some instances such evidence ought to be relied on. An

early French commission thought that such evidence ought always to be rejected. However, experiments carefully conducted led a competent authority to conclude that if the distance was short and the night dark such identification might occur, provided the smoke from the weapon did not interfere with vision.

The German authorities have investigated this question with care. Given, in a particular case, the make of weapon used, the charge and the conditions of light, an expert will be able to show precisely the measure of illumination that resulted, knowing the distance of the observer from the weapon. The expert will be able in every case to advise the police with respect to the accuracy of an alleged observation. With a great variety of weapons and the changing conditions of light, it will be seen that no general rule could be laid down; but the problem in each case can be accurately worked out. Amusing instances are cited by Germanic authorities, as where one witness swore that, being attacked in the night and struck a heavy blow on the eye, he recognized his assailant by the flash of light which resulted from the sudden impact with the optic nerve!

In line with this investigation careful experiments have been conducted to ascertain how long powder smells will remain in a room after a weapon has been fired. By such experiments an inspector is able to say with a certain degree of accuracy how much of a start an assassin has got on the police. The strength

of odor would indicate the lapse of time since the weapon was discharged.

It used to be true that if an assassin carefully cleaned his weapon after its use one could not say how lately it had been discharged. But it is now easy for the laboratory at police headquarters in Berlin or the Royal Institute for Experimental Therapeutics at Frankfort-on-the-Main or the Institute of Legal Medicine at the University of Leipsic or the Institute of Hygiene at Heidelberg or any one of the great scientific departments constantly at the service of the police, to say definitely whether or not a weapon has been recently discharged and to bring to the service of the criminal-investigation department every implement of modern science.

In all questions of disputed documents, forgery or alterations of written instruments and the like, these scientific departments are of inestimable value to the police. The age of a writing can be definitely ascertained. The chemical structure of the ink can be determined, and consequently the time at which the writing was made can be precisely arrived at. In order for a forger successfully to impose on the German authorities he would be compelled to have for his alterations the identical ink, in which the original documents were written. Proper chemical tests show a brilliant change in the colors of certain inks. Thus logwood inks treated by the hydrochloric test give purple-red reactions, while iron nutgall inks show a blue-green color under this test. When all the data

in respect to commercial inks are assembled and known, any sort of false alteration becomes an exceedingly hazardous business.

The paper used in frauds of this character has also been the subject of elaborate study and experiment.

All watermarks on paper are known, with the dates and issues corresponding to any peculiarity or defect in the mark. So that, though one might be able to obtain paper of identical watermarks corresponding to the original of the forged instrument, nevertheless defects in the issue of the paper of that year might not be known to the forger. These defects of a particular issue, known to the scientific department of the police, would disclose the fraud.

It is well known that watermarks on paper may be imitated by several devices such as the gelatine process and the pressure and grease processes. But such imitations would be quickly detected in the laboratory at police headquarters in Berlin or by any competent expert. A case is cited of an important government document which was pointed out to be a forgery because it bore as a watermark the double eagle of the German Empire. As this symbol was not adopted until after 1870 the forged document antedating that period was consequently a fraud on its face.

It must not be imagined that the German Empire is free from the operations of the sharper. Our own gold-brick swindle had its origin in Northeastern Europe. The placer mines in Siberia are operated

by the government. Individuals are not permitted to wash gold. Nevertheless, exiles and peasants in the regions of placer mining do wash and smuggle out of Russia considerable quantities of gold dust. This is known in the vernacular as "peasant wheat." It cannot be disposed of in Russia and is consequently sold secretly along the borders of East Prussia.

The details of the swindle are strikingly like those of our gold-brick fraud. The victim is approached in Tilsit or Königsberg by a sharper. Usually some little innkeeper tells him that a peasant has arrived at his inn with some bags of gold dust smuggled out of Russia. He does not know how to dispose of the gold nor has he any adequate idea of its value. The prospective purchaser is requested to prepare a blowpipe and some charcoal in order to test the gold dust. This he does. The peasant goes with the innkeeper at night to the residence of the victim, bringing the bags of gold dust in a trunk, as though he were an engaged servant. The victim selects dust out of the bags as he pleases and prepares to make the test.

At this point the peasant asks for a glass of water. He is awkward and embarrassed, and by accident the water is spilled on the charcoal. The innkeeper undertakes to get fresh charcoal, and returns in a moment with some blocks of it which he has obtained on the street. He is careful to prevent the victim from soiling his hands. He therefore very obligingly places the blowpipe in a correct position over the new blocks of charcoal. The gold dust is sprinkled

on the blowpipe and the purchaser conducts the experiments himself. Dust from all the bags is taken at will by the victim and sprinkled on the blowpipe. Intense heat is then applied. The victim knows that if the dust is not gold dust it will be destroyed by the heat; but if the dust is, in fact, gold, globules of that metal will appear. The result is that after the experiment little globules of pure gold are found in the crevices of the charcoal under the pipe. These the victim carries away and has analyzed at his leisure. They are pure gold, and he consequently buys the "peasant wheat"—which of course proves to be mere bags of brass filings.

The sharpers had prepared the charcoal by cutting out crevices in the blocks and inserting the globules of pure gold, after which they filled up the crevices with charcoal mixed with beeswax. The obliging inn-keeper, who wished to keep the victim from soiling his hands, was careful to see that the blowpipe was placed precisely over these prepared crevices in the charcoal. This process, described by Krestovski, robs us of the distinction of having invented in this country the immortal Indian and his brick of precious metal.

Perhaps the greatest advance made by the German authorities in man-hunting mysteries has been along the investigation of bloodstains. Our criminal courts used to flounder about with expert testimony on this question. It used to be impossible to tell a blood from a rust stain, and after that it seemed impossible to tell human blood from that of certain animals which

it closely resembles in physical structure. The German authorities went seriously at this problem, a thing of the most vital import in almost every murder trial.

They finally worked out a serum test. Investigators such as Wassermann and Uhlenhuth were able to establish accurate tests by which the origin of a bloodstain could be precisely determined. They were able not only to say whether the stain was of human origin, but, if not, precisely what the origin of it was. There is no longer any doubt about it. If a bloodstain is found by the German police the experts will know precisely the origin of that stain.

The body of a man was found floating in the Moselle. The presumption was that the man had been drowned. The members of the murder squad presently showed that the man died by violence. They began to examine the premises where he had lived, and finally found a bloodstain. The family contended that this stain was chicken blood; but the chemical laboratory reported that it was human blood. The family were now given what we would call the third degree. It finally appeared that the dead man, in fact, had committed suicide, and the family had thrown the body into the Moselle in order to escape the scandal incident to the act.

A young inspector rushed into headquarters with an engaging mystery. He had found a pool of blood in the park and beside it a sheet of music sprinkled with stains. He had constructed a romantic theory

of a musician, unrequited love, and a death by violence. It was an engaging romance crowded with dramatic incidents; but it went to pieces when the laboratory experts pointed out that the stains were pig blood.

It used to be true that if a stain was of any age it was practically impossible to determine it. But the age of a stain does not disturb the German inspector. A mixture, five years old, of blood and sand has been determined, as well as dried stains four years old and mixtures of different animal bloods as old as twelve years. These experiments have been continued to show that stains on linen of twenty-five or thirty years' age can be determined.

One of the most puzzling difficulties has been with tiny spots which the accused explains by saying are from a mosquito or other insect which has been killed on the coat. Such a contention would not now give a German Inspector any trouble. If the stain is of insect origin a proper microscopical examination conducted in the Berlin laboratory will show traces of bug bristles or some structural evidence of insect origin. No violence sufficient to destroy the insect could be effected without leaving some evidence of the insect's structure in the blood spot, and this evidence the laboratory authority would unfailingly discover.

Not only have the scientific authorities at the service of the German police gone to this extent in the examination of stains, but certain European author-

ities contend that the time is not far distant when their laboratory experimenters will be able not only to show that the stain is of human origin but also to distinguish the individual from whom the blood was obtained. Each individual, under the serum test, will return some phase of reaction peculiar to himself. The test will continue to develop, it is thought, until this peculiarity is sufficiently definite precisely to indicate the individual.

In addition to bloodstains, fragments of other material are sometimes distinguishing evidence in the solution of a criminal mystery. The tiniest thread or fiber picked up under the minute German investigation may become a rope with which to hang the criminal. A fiber of wool, silk or cotton carries its complete history which the expert will be able to translate for the police. Roughly, these fibers may be distinguished by certain characteristics. Silk fiber is cylindrical, long and symmetrical. It has no scales nor little distinguishable structures. Cotton is known by peculiar twists in its structure somewhat like a spiral spring, while the fiber of linen is jointed. Often a tiny fiber not distinguishable to the eye will be found clinging to the nicks in a weapon, and this almost invisible evidence proves sufficient for the criminal investigator to work out the details of the tragedy.

For example, in a case of pretended suicide the experts found a fragment of bony structure adhering to a flaw in the blade of the weapon. This minute

microscopical evidence annulled the suicide theory, for it was shown that the character of the wound in question could not have been self-inflicted, since it must have gone to the bone, and the force necessary to cause such an injury could not have been used by the presumed suicide.

It has been shown that stab wounds have sometimes been found to be much deeper than the length of the blade of the weapon with which they were inflicted. A wound three inches deep may, in fact, have been inflicted by the blade of a knife two inches long. Such a fact used to be an important element of defense in homicide cases. If the victim bore a wound of a greater depth than the blade of the weapon it seemed conclusive against the presumption of guilt; but the experts have shown that the force of the blow compresses the body at that point. Therefore, when this pressure is released after the blow the wound in the relaxed muscles will appear to be much deeper than the length of the blade of the weapon employed.

The direction of bullet wounds will precisely show the position of the assailant, and their appearance will often indicate the precise distance at which the weapon was fired. Assassins have sometimes fired their weapon from a pocket or covered it with a cloth so as to prevent powder burns.

An elaborate study of the indention on cartridges enables the inspector to say with precision from what make of weapon a stock cartridge was fired. In one instance a cartridge picked up at the scene of the as-

sault showed a peculiar defect in the indentation which was known to belong to a make of revolvers turned out at a factory on a certain date, and from this defect the precise weapon was presently located.

It must be remembered that the German police have one great advantage over Scotland Yard or any American detective center. A complete record of everybody is always available in Germany. If one changes his place of residence or travels from one point to another, his departure and arrival must be registered with the police.

It is not to be concluded, however, that all dangerous crooks are by this means excluded. Some of the most daring and ingenious sharpers of which we have any knowledge have carried out their fraudulent devices in spite of the elaborate protective system.

A famous international cracksman one night looted the office of a business house in a German village. He expected to obtain a considerable sum of money in cash, but he got instead a small sum and a sight draft on a banking house in a neighboring city for some eight thousand marks. The ordinary cracksman would have gone no further. He would have known the robbery would be discovered in the morning and the banking house telegraphed to stop payment on the draft.

But the German swindler was a person of greater resources. He disguised himself as a police commissioner, went in the night to the residence of the owner of the business house, awaked him, told him that

his office had been robbed and inquired what the robbers could have taken. The man gave the sum of money on hand. The false commissioner inquired if there were any papers. The man replied that there was a draft for eight thousand marks and gave the address of the banking house on which it was drawn. The swindler called for a sheet of paper and wrote out a telegram to the chief of police in the city in which the banking house was situated, directing him to advise the bankers to stop payment on the draft and to take the proper precautions to arrest anybody who presented it for payment. He read the telegram over to the man. He then directed the tradesman to say nothing about the robbery until the police authorities could lay their hands on the swindler when he came to present the draft for payment.

The thing was so cleverly done that the tradesman believed he had been visited by an agent of the police. He did precisely as he was told. It was a day or two before his suspicions were aroused. Finally, not hearing from the police, he telegraphed the bankers, and received a reply saying they had heard nothing about the robbery and that the draft, properly indorsed, had been cashed. It was a bold piece of strategy impossible to any but the acutest order of criminal intelligence.

The whole postal system is at the service of the German police. They have the right to open and examine anything passing through the post which may seem to them to be important to their criminal

investigation department. They are able to do this so cleverly that the average person does not discover that his letter has been tampered with. However, when the police wish to know whether one of their letters has been opened a number of devices are resorted to which will at once indicate any effort to disturb the envelope. Among these is the device of putting a certain chemical in the gum on the envelope flap. If such an envelope is subjected to the least heat, in an effort to steam it open, a stain will appear along the line of the gum border.

The use of sympathetic inks is a favorite device of international swindlers. Checks, notes, and so forth, are sometimes written in these inks, which presently disappear, leaving only blank sheets of paper. Such inks are of various chemical constituents.

Before the German people saw the wisdom of closing all gambling houses in the empire sympathetic inks were very largely in fraudulent use. Obligations prepared in the most clever manner were given for losses in the fashionable clubs. The true amount, usually large, was written in an ink that would fade out, and underneath a nominal amount was written in an ink that would presently appear. Such a method was a decided advance over using merely a sympathetic ink that would fade, leaving a blank piece of paper. The paper itself would be an evidence of fraud. But an obligation in form calling for a small sum instead of a large one would be, on its face, conclusive of the debt of honor.

Anonymous letters written to high officials give the German police a great deal of trouble. But such a pastime has become an exceedingly dangerous one. The suspected person is located within a certain area by the writing materials used or the postmark. The post office in that region is ordered to keep a record of all stamps sold. These stamps are marked, sometimes in a sympathetic ink which will appear only when subjected to heat or chemicals. Such a mark will indicate the day and hour on which these stamps were offered for sale. The record at the post office will show the persons who purchased during that period. Thus when the anonymous letter is received, the mark on the stamp enables the authorities to locate the author among a limited number of persons. From this point the process of further elimination to the guilty individual is simple.

The German system has its disadvantages, but on the whole its results are perhaps superior to any other. It preserves a uniformity of method and insures an accurate and scientific investigation in every instance by persons competent to make it.

CHAPTER IV

AUSTRIAN CRIMINAL INVESTIGATION

WHEN a celebrated scientist was called as an expert witness in a noted English case, the barrister for the defense began his cross-examination with the following amazing query:

“Where is the dog?”

“What dog?” inquired the astonished witness.

“Why, sir,” replied the barrister, “the dog that the judge, at the last assizes, said he would not hang on your evidence!”

Such is the attitude of the English-speaking courts toward scientific research when brought to the aid of criminal investigation. France, Germany, Italy, and especially the late Dual Kingdom of Austria-Hungary, face the other way.

The detective system of Germany possesses military efficiency; that of Austria-Hungary the efficiency of the university. It is a system strikingly in advance of anything known to us. In English-speaking countries criminal investigation requires no established preliminary training. Before one is permitted to practice medicine or enter the courts as an attorney, he is required, with us, to take a certain uni-

versity course and to demonstrate a certain efficiency tested by examinations held by the state. A similar preparation is required in Austria for admission to its criminal-investigation departments.

It seems not to occur to us that the investigation of crimes is a science for which men may be instructed and prepared as we instruct and prepare them for the practice of certain professions.

But this idea is dominant in Austria.

It long ago realized that intelligent criminal investigation was a matter of the highest importance to the state; that its practice was a science; and that the ablest intelligence, properly equipped, ought to be enlisted in its service. The police president of a city like Vienna, and every member of the force above the grade of noncommissioned officer, is a graduate of a university. He must have gone through a long preliminary training. The student enters the university at about the age of eighteen, and after a course of four years is permitted to take the government examinations. If he wishes to obtain the degree of Bachelor of Laws, without which he cannot enter the police system of Vienna above the grade of noncommissioned officer, he must spend at least five years longer in the Austrian university.

It therefore happens that the criminal-investigation departments of such cities as Vienna and Budapest are conducted by a corps of the most highly trained and efficient experts of the world.

The service is a distinguished department of state.

The police president used to be immediately under the Minister of the Interior and was formerly appointed by the emperor. The emperor, as king of Hungary, also formerly appointed the *Polizeirat* for the city of Budapest at the recommendation of the Hungarian Minister of the Interior. It was a position with the emoluments and dignity of a cabinet office. This official and those below him were usually decorated by the Crown. Foreign countries often conferred titles upon them. Their service to the state were recognized and distinguished and their works were collected and printed as valuable contributions to the science of criminology.

It, therefore, happens that authorities like Gross, at the University of Gratz, have devoted their lives to this subject and have elevated criminal investigation to the plane of an established science; and men like Von Brzesowsky, of Vienna, have been easily distinguished as the most efficient police experts in the world.

The whole system has the solidarity, the permanence and the certainty of advancement common to European diplomatic systems. It has an atmosphere of scholarship, of efficiency and dignity that belongs to departments of state. One finds educated gentlemen with accomplished manners and a knowledge of letters and the world at the head of even petty departments; and one finds criminal investigation conducted with orderly precision; with the accomplished,

far-reaching, facile intelligence belonging to highly educated practitioners of a profession.

It is not to be concluded that the authorities fill these departments with mere theorists from the lecture rooms of the university. After a candidate has received his Doctor of Laws, a long, practical training begins. He enters what is called the Eleventh Rank as a *Praktikant*, to be carefully instructed in the application of the principles taught in the university, and to be trained. This training goes on for a period of five years, until he finally enters on his duties in the department with not only a knowledge of the theory but an actual practical working knowledge of every detail of the service.

The training school of Vienna is hardly to be compared with any other. It seems to be not unlike our naval training school at Annapolis and the military one at West Point.

The recruit is finally put on duty as a sort of apprentice to an experienced policeman. The whole class will sometimes take charge of a model precinct in a city. The student will have charge of actual police work for certain periods in the day, replacing the ordinary patrol or in company with him; and he will learn the actual manner in which thieves are apprehended, riots controlled and the order of the city maintained. He will know all about fencing, shooting, wrestling, and the like. He will be skilled in the procedure and the requirements of police technic. He will know foreign languages, telegraphic codes

and signals, the composition and nature of explosives, all manner of bomb making, the effect of poisons, marks and physical evidences of every variety of burglar tools, the significance of bloodstains, bullet and knife wounds, tracks, finger prints—all the varied evidences of criminal activity. So that every fragment of information—advantageous in a criminal inquiry—known to the great detective centers like the university at Gratz is practically at the service of the police through these highly specialized units which make up the directing intelligence of the criminal-investigation department.

This high efficiency is imperative where police organizations are compelled to deal with accomplished criminals, such as operate in the old communities of Europe. These criminals specialize to an incredible degree. The crude methods of Scotland Yard or of our American detective centers would not be sufficient to detect many of their clever methods. For example, the usual inspection of correspondence in English and American prisons, and especially in city police headquarters, would be wholly inadequate. The average warden, if the communication seems of no importance, permits it to go through. One who had read the detective literature of the country, and believed himself on a plane above the ordinary police sergeant, might test with heat or chemicals suspected writings for sympathetic inks, after the manner of Dupin or Lecoq.

This would amuse a European inspector.

No prisoner would be permitted to carry in sympathetic ink. Such methods belong to diplomatic intrigue. The neat secret message or literary billet-doux that comes out in an elaborate note when held to the heat of a fire or treated with a chemical after the manner of Poe's Gold Bug, is not the method by which the imprisoned criminal of Central Europe gives his sign, or word of warning, or indicates his instruction to his associates outside. It is more likely, as the prisoner prepares his note under the supervision of an official—at an opportune moment when the official's attention is distracted—he will write a few words or signs between the lines of his letter with the end of the penholder wetted by the tip of his tongue. One would believe that such a writing would wholly disappear when the saliva dried on the sheet. But this is not the case.

When the sheet is held at a certain angle of slant to a brilliant light the presence of such interlineations can be determined. If the whole sheet is now dipped into a weak solution of ink and immediately washed off, the surface of the glazed paper that has been disturbed by the saliva will take up more ink than the glazed portion which has not been disturbed, and the secret communication, which the criminal has written with the end of his penholder, will appear. This method of communication is easy and the means for accomplishing it almost always available. A match, the end of a pencil, a bit of anything with a hard point, and a piece of paper are sufficient.

Schütz, in the archives of Gross, describes a method of communication that is very common in Germanic prisons. It is a method so incredible that one would not believe it unless he were conversant with the extremely clever methods sometimes put into practice by the Teutonic criminal.

The prisoner wishing to make a considerable communication to his friends outside goes about it as follows: He takes a sheet of paper, soaks it in water, and lays it down on the hard, smooth top of the wooden table in his cell. He then puts a dry sheet of paper over the top of this wet sheet, and with the hard point of a match, pencil, penholder, or any bit of material, he writes his letter on the dry sheet, pressing down the letters with care so as to indent them as firmly as possible into the wet sheet beneath. When he has finished he destroys the top sheet on which he has written, and when the wet sheet has dried out all the characters indented on it have disappeared. The inspector who examined this dry sheet of paper would find nothing on it; no characters would be visible; it would appear to be nothing more than a sheet of paper that had been wet with water and afterward dried. Nor would the most careful investigation of it reveal any trace of writing. Nevertheless, when this sheet of paper, having reached its destination outside, is again soaked in water, the secret writing indented into it by the prisoner will again appear.

With a police organization of such accomplished units, one would expect to find exceedingly clever de-

ductive methods. The stories told of the Austrian detective centers amply justify this conclusion.

There used to be a castle of an ancient noble family in the Hungarian mountains. The ancestor had no sons, and the estate, under the ancient entail, passed at his death to a nephew, a young army officer of prodigal habits. One night in midsummer, while all the servants were at a fête in a neighboring village, the old noble was assassinated. His room in the castle was connected with a farther wing by a corridor little used and for a long time practically abandoned. The valet had put his master to bed as usual and had gone with the other servants to the fête. When the assassination was discovered it was evident to the criminal investigation that the thing had not been accomplished by any of the servants, because they were all accounted for in the village from a certain hour in the evening until daybreak. A window at the end of the abandoned corridor was found broken open. The assassin had passed along this corridor.

The first theory was that some roving gypsy or other vagabond criminal had accomplished the crime. But the entrance by the corridor seemed to indicate a familiarity with the architecture of the castle. The criminal investigator made a very careful examination of the corridor. He discovered that the assassin, both on his entry and return, had felt along the wall with his fingers. There was not a sufficient impression at any point to enable a finger print model to be taken. The dust on the wall, merely brushed, indi-

cated that some one had groped along with his hand. He also found some faint, vaguely indicated footprints in the dust, too indistinct to carry any identifying marks; but their shadowy outline was sufficient to give the inspector an indicative clew.

The corridor, as the castle stood, ran east and west. The broken window was at the east end of it and the chamber of the dead noble at the west end. The inspector discovered that the assassin, on his way from the window to the chamber of the dead man, had followed the south side of this corridor, feeling his way against the wall, and had returned along the north side. The inspector considered this peculiarity in the course of the assassin. He reflected that the human body has always a controlling side, and that when one undertakes a difficult feat—as, for example, groping his way along an unlighted corridor in the night—he would follow his controlling side. Thus, a right-handed man entering by the window would have followed the north side of the corridor and returned along the south side. But this assassin had done precisely the reverse.

He had followed the south side on his way to the crime and returned along the north side. Therefore, the inspector reasoned, the man had followed his controlling side; and therefore, he concluded, the assassin was left-handed. This clever deduction proved sufficient. The young officer was left-handed. And it was presently shown that he had secretly returned and

accomplished the assassination in the manner indicated.

This recalls an English case where a witness for the crown told the judge that the crime had been accomplished by a left-handed man. The incredulous judge silenced him with the observation that nobody could tell whether a man were left-handed or not unless he could have an opportunity to observe the criminal taken in the act.

He would not have silenced an Austrian inspector. Such an official would have pointed out that if one were attacked in front by a left-handed assailant the wounds would be on the right side of the victim. If he were attacked from behind they would be on the left side. Thus, the position of blows or stab wounds on the body of the victim would directly indicate whether the assailant were right or left handed. If the victim had been strangled the position of the thumb and finger marks would indicate it. The thumb print of the left-handed assassin would be on the left side of the victim's throat, while that of the right-handed assassin would be on the right side. So inquiries in an Austrian court would not require the overwhelming conclusive evidence that English courts reluctantly accept in the case of suicides. Scotland Yard did once succeed in convincing the court at Old Bailey that a supposititious suicide had not taken his own life, because the back of his left hand bore the bloody imprint of a left hand; and even an English judge must take judicial notice that one could not put the

palm and fingers of his left hand on the back of it! This minute observation of highly trained specialists, coupled with an acute intelligence, is characteristic of the Austrian system.

A workman was arrested, charged with the murder of his companion. He explained that the man, who slept in the same room with him, had gone to bed insensible from intoxication, and that a portion of the quilt, during the night, had fallen over his face and smothered him. It was perfectly true that the dead man had been put to bed in the state of intoxication asserted by the prisoner. The inspector was not certain that such an accident might not have occurred. But he observed that, as the prisoner explained the incident, when he came to the story of the quilt falling over the man's face he unconsciously spread out his fingers and pressed his hand against his thigh. The inspector reasoned that this was a subconscious gesture indicatory of the truth in contradistinction to the false statement. It was thus the assassin had accomplished his act—by pressing the quilt firmly with his hand, the fingers extended, against the face of the dead man. And, with this clew as a base, the inspector finally obtained a confession, showing the prisoner had, in fact, effected the murder precisely as the inspector had deduced from the gesture.

An even more striking instance is asserted by the criminal-investigation department at the University of Gratz.

A lumberman in the mountains had disappeared. He was a tradesman with one or two little sawmills. No trace of him could be found and the authorities wished to know whether he were living or dead. They took the problem to Professor Gross. Gross did not concern himself with an endeavor to trace the last movements of the vanished man. His concern was to obtain a working conception of the character of this man. He was not even concerned about his physical aspect. What he wanted to get at was the dominating trait in the man's mental structure. Gross examined a good many witnesses brought in to him from the community in which the man lived. Finally an old peasant told him that the vanished man was the sort of person who never had any good tools!

Gross broke off his investigation with that explanation of the man's character.

He said it would be found that the man was not dead, but had deliberately concealed himself. The reason would be that the affairs of such a person would not be kept in order; his business would be found to be conducted haphazard; it would likely appear that he was financially involved and, finding his affairs in a hopeless muddle, had disappeared. When the man's business came to be inquired into, the prediction was justified; and it was afterward discovered that he had left the country to avoid bankruptcy.

The thoroughness with which the Austrian authorities examine a suspected criminal in homicide cases

makes the ordinary methods in this country appear clumsy and ridiculous.

The accused is stripped. His clothing is examined under a magnifying glass for any trace of bloodstains. They do not expect to find stains visible on the clothing. They expect that the criminal will have washed them out. But Toudes and Gross have pointed out to the Austrian inspectors that when a bloodstain is washed out, no matter how carefully, it will always leave on the lining of the coat or garment a brown outline of a circle, which will indicate the extent of the washed spot. Thus, no matter how large or small the spot on the garment the accused has carefully washed, to remove the stain, there will remain on the lining of it this telltale circle.

The shoes of the homicide suspect are particularly examined. If there are any stains on the top portion of the shoe the assassin can be expected always to remove them; but, as a rule, he forgets about the shoe sole. If the assassination is accomplished by violence it is usually the shoe sole that will be stained. Consequently it is the sole of the shoe that the inspectors begin with in their examination. The *débris* under the finger nails of the accused is especially indicated for examination. It is removed and analyzed. Where the assassination has been accomplished by a struggle with the victim, the greatest care is taken to discover whether there are any marks of this struggle to be found on the person of the prisoner. Not only is the clothing scrutinized for any tear or break in it

but the body of the prisoner is carefully searched for scratches or abrasions, bruises, and the like.

Thus, in the case of a nobleman charged with murder, it was shown that his hands bore a number of tiny excoriations and bruises which the police were able to distinguish under a magnifying glass. They concluded from these tiny evidences, because of their appearance and number, that there had been a struggle. These authorities point out that in any case where the victim has been held down by the knees of the assassin great care should be taken to examine the region of the suspect's knee for evidences of bruises or abrasions, since it is certain that the victim, unless unconscious, would make some effort against his assailant at this point.

In one case where the victim had been held down on a sofa by the assassin's knee, while death was inflicted by strangulation, the inspector believed that the portion of the assailant's knee which must necessarily have come in contact with the wooden arm of the sofa—by virtue of the position in which the victim had been held down—would show a bruise; and upon looking for this bruise he discovered it at the determined position on the leg of the prisoner below the right knee.

An extraordinary case was carefully worked out by Professor Coutagne.

There had been an assassination in a certain house. The locked door had been forced open. Before the door a piece of paper was picked up. It was crum-

pled together and bore traces of bloodstains. This evidence seemed to lack a definite explanation when connected with the homicide. The homicide was not one accomplished by bloodshed. Besides, this fragment of paper was outside the house, near the broken door and at a distance from the theater of the crime. It seemed, therefore, not to be related to the victim. Excluding the victim as a source of these stains, there remained only the assassin. Professor Coutagne concluded that in his effort to force the door the assassin had injured his finger and had wiped away the blood resulting from this injury, on the piece of paper. He concluded that the injury was slight, because the evidences on the paper were such as would result from removing a trifling bit of blood from a slight injury. He concluded that it was on the finger, because in an effort to force the door one would be more apt to injure the tip of the finger than any other portion of the hand.

This conclusion of the professor was duly noted by the police.

Two months afterward the police brought to Professor Coutagne a person whom they had reason to suspect of the crime. The first concern of the professor was to examine the man's hands. He found on the middle finger of his left hand a little scar on the edge of the nail, and also on the rim of the flesh at the base of the nail. The prisoner at once explained it by saying that he had received this injury six months before. But the Austrian authorities had

very carefully ascertained the growth of finger nails. Professor Coutagne knew that the average finger nail grew at the rate of a millimeter a week. It was only a matter of calculation to show that within six months this injury to the nail, marked at the point received by the scar on the flesh of the finger, would have grown out and disappeared. A careful calculation of the growth indicated that the injury had certainly been received about two months before the date of this examination—that is to say, had been received about the date when the door was forced open. In this manner it was established that the suspect was the person who had accomplished the crime and injured his finger in endeavoring to force the door.

The detective department of the city of Vienna is divided into what we would call twenty-two police precincts. Each of these has its own squad, under an inspector, somewhat like the method of Scotland Yard—except that, instead of a constable advanced from the ranks, the inspector is a trained man from the universities.

When there is any criminal affair within the territory of a precinct it is at once investigated by the squad from its own quarter. But, in addition to these police divisions, the city has a centralized headquarters. This centralized department is again split up into two divisions—the *Agentenreferat*, which has charge of the discipline and control of the whole force. It also sends out special squads to investigate crimes above those of the slighter infractions of police regu-

lations. Thus, it happens that a criminal inquiry in its early stages may be conducted by two squads—one from the precinct of the district in which the crime arises and a second from headquarters.

But this is not all. There is a second branch of the centralized detective organization of the city. This branch, called the *Sicherheitsbureau*, is in reality the expert advisory board to the whole detective organization of Vienna. It consists of twelve branches; each of these departments is under the direction of an expert skilled in a special character of crime. These twelve divisions specialize on title and decoration frauds; international swindlers; commercial frauds; gamblers; receivers of stolen goods; burglars; thieves; pickpockets; counterfeiters; mysterious disappearances; fortune tellers; and administrative affairs.

Thus, the detective department of Vienna presents the curious example of maintaining three departments available for criminal investigation, namely: The precinct squad; the squad sent out from the *Agentenreferat* division at headquarters that goes to the assistance of the precinct squad in the investigation of important crimes; and in addition to these, if the case is found to be especially difficult, the *Sicherheitsbureau* will send its expert squad on that particular crime. If the case proves to be of sufficient importance this latter expert squad will take exclusive control of the investigation.

In a celebrated instance a burglar had entered a

house barefooted, in order to move about with greater freedom and silence. The police found at the point of entry, in the garden, the burglar's track on a wet board. This track showed only four toes. The track was quite distinct and it was perfectly clear that only four toes were indicated. The inspector now set himself to look for a burglar with four toes. An old housebreaker known to have been in the vicinity of the place was taken up. He explained that he could not be the person guilty of the crime because he had five toes, and he removed his shoe in order to convince the inspector. The inspector was satisfied and was about to set the man at liberty when an expert from headquarters happened to come into the room. He looked at the man's feet and at once said to the inspector that the guilty man was before him.

The inspector was astonished. He pointed out that the track showed only four toes, and it was evident that one toe of the suspect was missing. The expert directed the inspector to wet the floor and force the prisoner to walk on it in his bare feet. It was done. And to the astonishment of the inspector the track showed only four toes. The second toe had been so displaced by the pressure of tight shoes that it lay on the third toe in such a position that it was entirely off the floor when a barefoot track was made.

An important thing to international police has been carefully worked out by Austrian detective centers. It is extremely useful to know as much as possible

about foreign diplomatic correspondence. It is often a great gain to get at the contents of letters which the police authorities do not dare to open. Extreme care is taken in diplomatic correspondence, and in political and other correspondence, to see that the envelope containing a communication is not interfered with.

Theier and Hardmuth, of Vienna, were the first to experiment in efforts to find a sort of envelope that would prevent the contents from being read by means of the X ray. Envelopes with a bronzed lining, or with bronzed figures running into one another, were the most successful. They asked the Austrian Institute to undertake photographic experiments by means of the Roentgen ray. The bronzed envelopes were found to be very difficult for the Roentgen ray, while those that were ornamented with bronzed figures allowed the light to go through only at the white places. At best, in these cases, the words written in the interior of letters inclosed in such envelopes could not be very intelligently deciphered.

A very simple method of getting at the contents of letters in plain envelopes has been finally worked out.

The letter is placed in a frame of a photographic plate in a dark room under a red light only. The envelope is laid directly on the glass. A sensitive plate, a little larger than the letter, is placed in such a way that it lies directly over the letter. The photographic frame is closed and the plate exposed. The time of exposure will depend on the degree of light

necessary to take such a picture, as determined by experiments. When the plate is developed the writing on the letter within the envelope will appear and the whole interior of the letter can be seen as through a transparency.

This process is exceedingly simple and can be easily used without injury to the envelope.

CHAPTER V

DETAILS OF ITALIAN CRIMINAL PROCEDURE

THE Italian detective centers are confronted by a unique feature of criminal investigation. Scotland Yard and the German centers have usually to deal with only the isolated criminal or the criminal and his accomplice. But the Italian investigator is confronted by the work of organized bands. These criminal fraternities are indigenous to the south of Europe. They have extended north-east into Austria and northwest into France, but their habitat is generally the coast of the Mediterranean.

We are in a general way familiar with one or two of these fraternities.

The Camorra, of Naples, and the Mafia, of Sicily, have been highly colored assets to the writers of romantic melodrama. These, with the *Mano Nera*—the Black Hand—are the only ones of these orders that have come in any degree to the attention of English-speaking people. These are by no means the only criminal fraternities with which the Italian police are constantly concerned. The smaller bands—as, for example, the Barabas, the Tepisti, the Bulli, the Magnaccia and the Malavita—present equal difficul-

ties to the Italian authorities. The Italian criminologist Lombroso undertook to separate the colored fiction from the actual fact in respect to these criminal orders. His statements may be taken as nearer the truth than those of any other authority. Outside of his notes on the investigation of these fraternities but little accurate data is available.

The Camorra, of Naples, was originally formed by a band of old convicts. The person who desired to enter it was carefully tested and must have proved his fitness by at least one assassination. After several years as a sort of acolyte he was finally admitted. The order was wholly vicious and avowedly opposed to every form of established authority. Once a member, there was no way of getting out of this fraternity. The chief of the Camorra is called the *Maestro*. The whole order is assembled when an important matter is to be determined. The Camorra controls certain gambling houses in Naples and the members of certain low orders of professions. It divides its earnings under a community principle. Its orders must be carried out under pain of death. Ottolenghi, who also studied this order, maintains that it is divided into two grand divisions, *l'alta* and *la bassa*—that is to say, the high and the low Camorra. And these grand divisions are again broken up into smaller circles like that of the Capintesta of the high division and the Picciotti of the low division.

The Sicilian Mafia resembles the Neapolitan orders but it is more pretentious and boasts of a dis-

tinguished membership. It takes its name from the race course in the environs of Trapani. The chiefs of the Mafia are called in the vernacular *Bravi*, and the members of the order *Mafiosi*. It claims to recruit its order from the aristocracy of Sicily and to be, in fact, an invisible governing body. It undertakes to enforce its decrees with relentless vigor. Its claim to adjust political affairs and to maintain a wise, invisible control is, in fact, a ridiculous pretension. Its influence is for sale. It engages in acts of the most atrocious vengeance. It is involved with all sorts of theft, robbery, brigandage, and maintains its position only by the terror it inspires. After the Mafia had assassinated Pancaro, at Vittorio, it undertook to intimidate everybody in the neighborhood by writing on the walls of the houses the following sinister warning:

*Those who keep silent will be rewarded;
those who speak will die!*

These orders are impressed with the value of dramatic properties. They are accustomed to mark the door of their victim with a cross or to indicate it with a bullet fired into the wall, knowing well the effect of such sinister devices upon the minds of an ignorant citizenship already in terror of their vengeance.

The Mano Nera—the Black Hand—is not an organization at all in the sense of the Camorra, the Barabas or the Bulli. It is a method rather than an

organization. The Italian authorities are concerned with it only in their international relations with the United States and the nations of South America. A single Italian or an isolated group or circle of Italian criminals in any city may resort to the Black Hand method for extortion or to accomplish any unlawful purpose. The conventional sign will be used and the conventional steps in the method practiced. But this does not mean that the authorities are confronted by a branch of a great organization, or that the enrolled members of an organized criminal fraternity have appeared at a certain point. It means only that Italians of criminal instinct, or other criminals who wish to be considered of Italian origin, have resorted to the Black Hand method for the purpose of extortion or to impose their will in some unlawful affair. The Italian detective centers have made this important fact clear to the American authorities. The thing is only a method, as our gold-brick swindle is a type of fraud, and may be put into practice by anybody.

These criminal orders are only the more conspicuous of many closely organized and dangerous fraternities with which the Italian detective centers are forced to contend. These bands necessitate a method of criminal investigation in the kingdom of Italy more highly centralized than that of any other government in Europe, not excluding the Germanic countries.

It was clear that local police organizations in the cities and villages dominated by these criminal orders

could not be depended upon to resist them. The kingdom of Italy is made up of many little principalities and free cities, and consequently is lacking in solidarity. It was necessary to deal with criminal investigation in various parts of the kingdom from a centralized organization. The sixty-nine provinces of Italy, in their police organization, are directly under the minister of the interior, who appoints a prefect for each province.

The principal form of police force is the *Carabinieri*—this is, in fact, an army corps directly under the Crown. It is made up of eleven legions distributed throughout the whole of Italy. In addition to this there is a supplementary organization called the City Guards, also under the War Department. The *Carabinieri* police the whole of Italy and have charge of its entire criminal investigation, even in the smallest villages. It is an extraordinary organization, firmly centralized and efficient. In many respects it has no equal in any other country. The *Carabinieri* always patrol in squads of two and bring to the remotest village the same skill and efficiency in criminal investigation to be found in the capital. This system enables the Italian authorities to oppose the organized criminal bands that for a long time dominated the south of Europe with an efficient detective service, all foreign units, in no way subjected to any local influence.

It was the *Carabinieri* detective Capezanto who ferreted out the *Camorra* fraternity in Naples and

enabled the government to undertake its recent efforts to destroy that sinister organization. This detective succeeded in joining the band. He sat with it in the famous assembly convoked in session in the subterranean chamber under Saint Giovanniello, in Naples, where it was determined to assassinate the traitor Cucocolo and his wife. It was developed at this grand assembly of the Camorra, in which the Italian detective sat as a member, that the head of the order in Naples was Janvier de Marinis, a man moving in the most elevated society in Europe, a gentleman, and a person of distinction.

One morning at Monte Carlo, that alluring garden of the baleful Hesperides, a man was found dead. He had been shot through the temple, and a revolver, with one chamber empty, lay beside him. He was evidently a person of some importance. His dress and general appearance indicated a rather elevated social plane. Such fruits of the tree of fortune are continually to be discovered in the gardens at Monte Carlo, and a new grave is said to be kept always dug and ready on the hillside overlooking the Casino.

The whole affair was accepted by the authorities as the usual suicide; but they were puzzled by a knife slash on the cheek. On examining the body they found a design tattooed on the arm. The design appeared to resemble a tower, with a sort of arched gateway and three pointed battlements. The police reported these facts to the Italian authorities, who at once replied that the design in tattoo indicated that

the man was a Camorrist. The slash was the mark put on traitors by this criminal fraternity after they had been assassinated by an order issued by the assembly at Naples.

In connection with this incident it is interesting to remember that great police officials assure us that the professional gambler or person moved by true gambling instinct never under any circumstances takes his own life. It is the defaulting clerk who kills himself, the ruined shopkeeper, the desperate woman of the world, the involved financier, the defaulter, and the like, who have turned for the moment to the gambling table in the vain hope of recouping their losses or mending their ruined fortunes. The true gambler is a person of eternal hope. If he loses to-day he believes that he will win to-morrow. "None but reasonable and reasoning men, players from ambition, from envy or from necessity, ever give way to despair and commit suicide. The professional gambler lives to old age," says Monsieur Claude in his *Mémoires*.

The French detective centers have been obliged to study these secret criminal fraternities after the manner of the Italian criminologists, Lombroso, Ottolenghi, and the authority at Naples, Afredo Niceforo, since they have to contend with the Nervi of Marseilles and the Apaches of Paris. These groups resemble the Italian criminal fraternities, except that they lack the solidarity of such orders. They are, in fact, groups of criminals loosely associated and vaguely assembled under a generic name.

The Nervi of Marseilles used to maintain a conventional sign—a small tattoo mark at the outer corner of the left eye. The discovery of this mark of identification was of extreme importance to the police and has finally been abandoned by the members of the band. The Apaches of Paris are an order of the lowest and most dangerous criminals in the world. There is no great central organization like the Italian orders, and no fixed rules or assemblies. It consists merely of groups of crooks operating in different quarters of the city. These little groups or circles take their names from the quarter of the city that they inhabit and have their own conventional signs, places of meeting, leaders, and the like. The members are usually young, beginning as boys of ten or fifteen years.

The females associated with these criminal bands are called *marmites* in the vernacular of the underworld. There was a struggle in Paris between the Apache bands of Manda and Lecca, involving, like the Iliad, the abduction of a Helen. She was a famous beauty in the subterranean cafés of Paris and called, in the argot of Montmartre, La Casque d'Or. The very name has the ring of romance. She was betrothed to the leader of the Manda and was carried off by the rival band of Lecca. War followed between the bands—a bitter, vindictive, bloody feud.

This contest destroyed the Apache ascendancy in Paris.

As the criminal bands struggled the police profited.

They discovered the habits, customs, manners, argot and signs of these orders. They were able to locate the cafés they frequented. During the violence of this feud the police discovered that there was no solidarity in these organizations, and that they were mere groups occupying certain portions of the city. They maintained no official organization but a leader of the groups usually arose. Some one of the band, more skillful than the others and of a more dominant personality, attained an ascendancy and came presently to exercise the authority of a leader; but there was little further organization. The booty was usually divided after the community manner of thieves. It was the duty of every member of the group to go at once to the assistance of any associate in difficulty with the police. And generally a member of any Apache group would assist another to escape from the gendarmes.

The members of these criminal fraternities, like the gunmen of New York, do not usually carry a pistol where it would be at once located by an officer. It is sometimes carried fixed to a spring in the inside of the hat, or concealed under the waistcoat, or in the sleeve of the coat under the left wrist, or close under the hollow of the left arm. Very often the weapon is carried by a woman associated with the criminal. Thus, a member of one of these bands taken at the scene of a shooting will have no weapon on him; nor can any be found in the vicinity. This means that, on the adventure, he had been accompanied by a

marmite, who handed him the weapon and immediately after received it back and carried it away concealed in a muff or handbag or about her clothing.

Varieties of protective armor have been used by these criminal fraternities. A metal cuirass is sometimes used, protecting the chest and back. The Apaches of Paris are accustomed to strap a leather case round their arms and on top of their shoulders under a loose coat sleeve. This case is studded with a great number of fine, sharp spikes. It is an effective protection against the gendarme. If the Apache is seized these spikes tear the hand of the gendarme who undertakes to arrest him, and he is thereby able to escape. It is for these reasons, and because of the existence of organized criminal bands, that the police of European cities do not undertake to act alone.

The Italian police, even in the country districts, always patrol in pairs. And there are certain quarters in Paris that the police will not undertake to enter at a period of disorder except in squads of at least five.

Italian detective centers have especial difficulty with petty thieves and those accomplished in some particular method of robbery. In Southern Italian cities children are educated to these criminal devices at an early age. One unfamiliar with the employment of a child as an accomplice would not suspect the relation in a very great number of instances.

A man of respectable appearance, accompanied by a clean, well-dressed little boy of eight or nine years,

will enter a big shop. They will walk about looking at various articles precisely as any visiting persons might do. Presently they locate some one who is making a purchase. If his pocketbook seems to contain a considerable sum they locate the pocket in which the purchaser replaces it after paying for the article he has selected.

They approach him and begin to look at the articles that have been displayed for his selection.

When the article purchased by the intended victim is handed to him by the clerk, the adult crook, in turning about, manages skillfully, as by inadvertence, to knock the article out of the purchaser's hand so that it falls to the floor. He at once apologizes profusely and stoops over to assist the purchaser in recovering his article. It is at this moment, when the adult crook and the victim are concerned with the recovery of the article on the floor, that the small boy deftly removes the victim's pocketbook. This is only one of the common practices of the sneak thief where children are engaged as accomplices.

Shoplifting in European cities is an organized system of brigandage.

In America and England it is usually the independent undertaking of a single sneak thief. But in European cities this sort of larceny is carried on by organizations of thieves directly under the control of some receiver of stolen goods. The thefts are not done in a haphazard manner, as with us—that is to say, the taking of any convenient article on the chance

that it can be disposed of. Under the foreign system the "fence," or receiver of stolen goods, furnishes these thieves with a list of the articles that he can handle with the greatest facility and the largest profit. They go out to the shops to find precisely the articles their employer wishes. In one city alone the profits of a little group of these thieves, thus organized and working under a fence, amounted to over forty thousand dollars in one year.

After the organized criminal fraternities, Italian detective centers have more difficulty with pickpockets than with any other form of thieving accomplished without violence.

It is a cardinal rule of the European pickpocket never to operate alone. He is always attended by an accomplice; in fact, the highest orders of these crooks always employ three persons in their adventures. These operators are called in the criminal argot the *Leveur*; the *Main*—the Hand; and the *Trimballeur*. It is the duty of the first of these, the *Leveur*, to locate the victim and to indicate the pocket in which he keeps his pocketbook. The operator called the Hand lifts the pocketbook, which he at once passes to the third person, the *Trimballeur*, whose business is to conceal it and carry it out of the crowd. These pickpockets operate in all countries in the press at railway stations, in the subways, at fêtes, cafés; and, in fact, everywhere that a crowd of people is to be found.

Like all thieves, they are confirmed specialists.

Some take only watches; others only pocketbooks; others pieces of jewelry. Some operate only in railway stations; others only in the corridors of banks or money-exchange offices, others only in shops, and so on. The height of the crook will often determine the special line he will be fitted to follow; as, for example, a little man is usually a watch thief.

These crooks carry certain implements for use in their vocation. Small steel nippers will be carried to cut watch chains or the fastening of studs or earrings. Round-pointed, exceedingly sharp scissors, with a short squat blade, are used to cut clothing. High-class operators of the Hand variety sometimes wear a ring that contains a very sharp tiny blade folded into it. The pressure of the thumb brings out this blade, so the operator has, thus, on the inside of his hand a sharp implement to cut away a pocket.

The method by which a trio of these crooks operate is exceedingly interesting. They will enter, for example, a railway station crowded with people. The *Leveur* locates a traveler who has just bought a ticket and whose pocketbook seems to be filled with bank notes. He notices where the pocketbook is replaced by the selected victim, who, in the criminal vernacular, is called a *pante*. The *Leveur*, having located the victim and the pocketbook, now indicates by certain conventional expressions its position to the operator called the Hand.

If the pocketbook is in the inside waistcoat pocket on the right the *Leveur* calls out "*A la bonne.*" If

it is in the inside waistcoat pocket on the left he says "*A la manque*." If it is in the top pocket he calls out "*En lune*"—"In the moon." If it is in a low pocket—as, for example, the trousers pocket—he will indicate it as being on the right or left side by his conventional expression, "*En grande, à la bonne*"—for the right side; or "*En grande, à la manque*." The operator, the Hand, then comes up to the victim, usually with an overcoat or cloak on his arm and a newspaper in his hand. He jostles the victim, secures his pocketbook and passes it on immediately to the *Trimballeur*. It is the business of the two accomplices, while the Hand undertakes his work, to crowd the victim, to bar his way with traveling bags, and to jostle him.

They are usually very carefully dressed and take special pains to indicate no knowledge of or relation to a confederate. They would seem to be ordinary travelers, with nothing in their appearance to distinguish them from other persons in the crowd. They especially frequent the best trains running to the Riviera, the *Express de Luxe* from Paris to Venice, and the great race courses, like those at Ostend and Auteuil. At the latter places their work is usually done in the excitement attending the close of a race.

These crooks are not always men. The detective center in Paris discovered two women operating on the Champs Elysées who were so exceedingly accomplished that they actually undertook to include a police inspector among their victims. One of them,

armed with pickpocket tools, cut the studs, earrings and watch chains of the victims. Her accomplice, following, gathered them up and concealed them in an elegant bag. They were young, exceedingly smart and dressed in the most exquisite fashion. They would perhaps have escaped any suspicion of the authorities but for their effort to cut the watch chain of a distinguished inspector of the Sûreté.

The Italian authorities are as skillful as any other in the solution of the ordinary criminal mystery.

One morning in midsummer a great banker of large international affairs was found stabbed to death in his library. A secretary in the room, with a roll-top, had been broken open and rifled. Beside it were found three implements—a broad, thin-edged chisel without a handle; a longer, narrower chisel with a battered handle; and a third chisel, twice the length of the others, with a broad handle and a long, narrow blade.

The examining magistrate who immediately took charge of the affair arrested everybody in the employ of the banker or connected with his affairs. He caused each of these persons to be brought before him alone, excluding all others from the room, and subjected each individual to a rigid examination. He was not hampered by the legal restrictions of English or American courts. He was a skilled official and he put the person before him through the ordeal of a grilling third degree. When he had finished he called in the official having charge of the scientific

branch of the criminal-investigation department.

"I have obtained a confession with respect to this affair," he said; "but before I make it known to anybody I wish to compare it with your report. I desire you to examine this broken secretary, the tools with which it was accomplished, and report to me how many persons were engaged in the act, and their trade if that fact is disclosed by the evidence."

The scientific branch of the criminal-investigation department at once undertook the solution of this problem. Here were three tools, which seemed to indicate the joint labor of three persons. The experts at once pronounced these tools a carpenter's chisel, a locksmith's chisel and the chisel of a joiner. It would seem, then, as the simplest deduction, that a carpenter, a locksmith and a joiner had broken open the secretary. But this theory was at once rejected. The carpenter's chisel was an old, abandoned tool and not such an implement as one of that class would carry about with him as a working tool. It was evident that it had been picked up somewhere by some person not in possession of the ordinary tools of a workman of this guild. Moreover, they discovered that this tool had been simply used as a wedge because of its exceedingly thin blade. It had been driven in close to the lock in order to force up the roll-top sufficiently to permit the use of the two other tools.

The scientific branch of the criminal-investigation department reported to the examining magistrate that the secretary had been forced open by two persons

working respectively on each side of the desk with the locksmith's chisel and the joiner's chisel, using the old carpenter's chisel as a wedge; that the force applied on each side with the respective tools had been exerted in such a manner as to indicate the work could not have been done by one person; that the first person must have held the desk firmly in one corner with the joiner's tool while the second applied sufficient force with the other tool to break the lock.

The fracture was unskillfully performed. Though the tools of the joiner and locksmith were used, the persons making use of them were not workmen of those classes. The scientific branch could not inform the magistrate to what vocation in life the persons accomplishing this work belonged. But it could assure him that they were not carpenters, locksmiths or joiners; they were not professional cracksmen of any kind. The two persons engaged were amateurs.

The magistrate in charge of this affair then pointed out that this report confirmed a confession which he had obtained from the young valet of the banker. He had assisted the old valet, not only in the assassination but also in the subsequent robbery. The two of them had broken open the secretary with the chisels of a joiner and a locksmith, which he had stolen for the purpose, assisted by a carpenter's old chisel which they had picked up about the premises. The magistrate explained that he wished to verify this statement before he made it known, because the old valet,

in spite of all pressure, had stoutly denied every detail of the confession.

Almost twenty years ago the Italian authority, Niceforo, pointed out that the method, common to English and American courts, of undertaking to present the scene of a criminal act to a jury by the verbal testimony of witnesses belonged to the Stone Age of criminal investigation.

The Anglo-Saxon is notoriously against progress in legal procedure. He adheres to methods adapted only to conditions that have ceased to exist, and he resists every new device.

It was early evident to the Italian authorities that a jury or a judge could never get more than a confused idea of the theater of a crime out of the mere examination of witnesses who had inspected it. They discovered over fifty years ago, in the celebrated assassination of the Duchess of Praslin, that two thirds of the time of the court was taken up in trying to get precise facts out of the testimony of witnesses, and to settle contested questions over the position of furniture or articles in the room at the place of the assassination, bloodstains, evidences of struggle, and all the indicatory aspect of the chamber in which the famous crime had been enacted. Besides, witnesses could not remember certain details. Was a chair here on the floor or at another point? Was a certain drawer of the secretary open or closed? And the like. It became evident to the Italian authorities that some method must be adopted to present to the trial

court an exact, unquestioned conception of the theater of a crime in all of its details, precisely as it appeared when discovered by the police.

They first undertook to get along with a drawing. This method was almost immediately followed by a system of photography. They worked out a plan by making careful photographs of the place of a crime. If the crime had been committed in a house they began by photographing the approaches to the house. If it was the work of a burglar or cracksman the photographs included the door or window forced, the halls or corridors followed by the criminal in his entry or exit.

This application of photography worked out by the Italian authorities and various European detective centers enabled all prosecutions presented to a court to be accompanied with an exact view of the whole theater of crime precisely as it was found by the police inspectors. From these photographs, properly arranged, the trial court or examining magistrate had an accurate view of the whole course traversed by the criminal, together with an exact picture of the actual theater of the crime, with all the indicatory evidences directly shown.

Thus, at one stroke, the Italian authorities removed all the interminable, confused inquiry with respect to the indicatory evidence at the theater of a crime that so clutters an English criminal trial.

In addition to this, in order that there might be no question about distances they adopted a plan of pho-

tographing a tape measure in the picture; so that there was disclosed in the photograph itself its own accurate scale of distance.

The detective centers of Europe have perfected this application of photography. It is now a thing extraordinarily efficient. They have worked out what is called the *Photographie judiciaire métrique*.

Nothing like this tremendous advance is known to the average English-speaking criminal investigator.

The criminal courts still blunder along with the methods of the Stone Age, blatantly asserting that our devices are the best in the world, ignorant of the advance of other peoples, refusing to define the word foreign except by the term inferior! For the most part, our minor courts do not even know that advanced methods of criminal investigation exist. In some measure they make use of finger prints and photographs. Occasionally the film of a camera or the plate of a local photographer is brought in and offered as evidence in a criminal trial. Sometimes the court permits this exhibit to be introduced and sometimes it rejects it. But it is nearly always a crude affair, subject to attack.

For many years the great Italian authorities, the centers of Vienna, Berlin and Paris, have been at work to reduce criminal investigation to an exact science. The learned universities have given their attention to the questions involved. Able men have devoted their lives to perfecting methods and devices for the preservation and translation of evidential

signs at the place of a crime. All these data are practically unknown to the American people. Not even Scotland Yard seems conscious of the exact devices used every day by the Service de la Sûreté, across the channel in Paris.

On this smug, complacent egotism of the Anglo-Saxon the advance of other nations impresses itself not at all.

"The earth has her boundaries," Flaubert used to say, speaking of the criminal tribunal at Etampes, "but human stupidity extends to the stars!"

CHAPTER VI

SWISS METHODS OF PRESERVING EVIDENCE

THERE are two steps of paramount importance in all criminal investigation: The search for evidential signs and the preservation of these signs for future reference.

This is the first undertaking of every detective center; the opening moves in the solution of all criminal mysteries. The care with which the scene of a criminal adventure is examined and the efficiency with which the evidential signs are preserved will control the ultimate identification of the criminal agent.

This aspect of criminal investigation is the distinguishing feature of the Swiss detective centers.

The Swiss agent is not superior to the individual of other systems in deductive methods. He lacks the directness of Scotland Yard and the diplomacy of the Service de la Sûreté in Paris. Nor does he excel in the untangling of an intricate criminal mystery. But in the examination to be made at the theater of a crime and in the steps to be taken for the preservation of indicatory evidence the methods of the Swiss authorities are unequaled by any detective centers in the world. The following regulations formulated by

the criminologist at the University of Lausanne, and the *juge d'instruction* of the Canton of Vaud, indicate the extreme care taken to sequester evidential signs:

“In case of an important crime the gendarmes and agents of police shall take care to see that the condition of the premises be maintained precisely as found—evidences, marks, tracks, and the like—until the arrival of the examining authorities. If the crime has been committed in a room, all the approaches, doors, and so forth, must be closed and if possible guarded with a seal. If the crime has been committed in an isolated house or in the open country, the approaches to the place must be forbidden to the public within a radius of not less than fifty yards. The approaches to the place must be forbidden to all persons having nothing to do with the inquest.

“The agents of police, gendarmes, and so forth, discovering the crime, or called to the investigation, must refrain from touching the furniture and utensils, and especially all pieces with polished surfaces found on the place. They must be careful to see that nothing is moved, touched, taken up or effaced before the arrival of the examining authorities. It is absolutely forbidden to touch a cadaver. They shall avoid, as far as it is possible, walking within the guarded area.

“They shall indicate in their reports the names of all persons who have arrived at the place of the crime before the examining magistrate. The mayor shall in-

struct the people in case of a crime to leave everything precisely as it was when it was discovered. He shall place a guard and give immediate notice to the examining authorities.”

The first care under the Swiss method is rigidly to sequester the premises. The second care is to examine these premises for evidential signs and to preserve these signs. If the crime has occurred in the open there will likely be footprints and perhaps the tracks of vehicles, horses, automobiles, and the like.

Five points of examination are indicated for the tracks of a vehicle:

1—The diameter of the tire; 2—Defects or other peculiarities of the tire; 3—The circumference of the wheel as shown by the distance outlined in the track where the tire is joined or welded together; 4—The tread of the vehicle—that is to say, the distance between the parallel tracks; 5—The degree to which the pebbles, earth, sod or dust are crushed by the vehicle, as indicatory of its probable weight.

Having indicated these marks of identification, the inspector will wish to determine the direction taken by the vehicle. This is easily determined by the tracks of horses. But it can also be determined in snow, mud or soft earth by the cracks in the ridges of snow or mud made by the wheels. The tops of these oblique tracks will point in the direction opposite to that taken by the vehicle.

Automobiles are now largely used by criminal

agents, and it is extremely important to be able to identify the car by the tracks that it may leave in the earth, dust, snow or mud of the road. The Swiss authorities urge that the track of an automobile be very minutely examined for a distance sufficient to cover the entire revolution of the wheels. They say that every tire will show some defect or peculiarity in structure; and they urge that a mold be taken of the track at the point showing any such distinguishing feature.

They assert that the direction taken by an automobile cannot be determined on a level road; but if one will follow an automobile until it begins to descend a grade he can, on this grade, determine the direction the car has taken, provided the tires are studded, as is almost always the case in Europe. As the car descends the hill the anterior part of these round studs on the tire will be imprinted a little deeper than the posterior part, or they will seem deeper by reason of the compression of the earth under the weight of the car on the studs as it advances.

Thus, to discover the direction taken by a motor car one has only to follow the track to a grade and there ascertain whether it is the anterior or posterior part of the studs of the tire that are deeply imprinted in the dust, snow or mud of the road.

Having located these evidential signs—vehicle or motor trucks, footprints of men or animals, and the like—the Swiss inspector proceeds to preserve the peculiarities of these signs for future use. He does not

trust to the memory of individuals or to any descriptive method.

Molds are taken of all these evidences. A variety of substances have been used for the purpose of making these molds: stearin, wax, glue, plaster of Paris, and so forth. Of all these substances plaster of Paris gives the best results.

If the imprint to be molded is found in dry earth, or earth approximately dry, it is not necessary to give the print any preliminary treatment before making the plaster-of-Paris cast. The inspector prepares a liquid solution of the plaster of Paris with water. He is careful to stir the plaster of Paris into the water, sifting it in small quantities and stirring the water continually. One must never pour the water into the plaster of Paris, for this is apt to leave the mixture with clots and nodules that will render the solution useless for molding.

The solution is then poured slowly into the indentations of the print. When it begins to set, if it is a print of any size or depth, small bits of wood the size of the print are placed in the plaster to reënforce the mold; a second application of the plaster is then added. This is for the purpose of solidifying the mold. If this method is carefully followed, when the plaster is completely set one can lift out the mold without any danger of breaking. The mold is afterward cleaned of any earth that may adhere to it by washing it with water and a brush.

In order to keep the plaster from running out

above the print when one takes a mold, it is advisable to surround the top of the print with a pasteboard border. This will confine the plaster and keep it from spreading over the ground.

This is the usual method used for the purpose of preserving evidential signs in hard, dry earth—automobile tracks, vehicle tracks, footprints of men and animals. All evidential indications in dry earth, or earth approximately dry, are molded and preserved by this method. And thus every peculiarity of such indicatory evidences is made permanent and available to the authorities.

If the prints are in soft earth—garden beds, and the like—it is necessary to harden the print before the plaster mold can be taken. In order to do this a concentrated alcoholic solution of gum lac is used. Canada balsam gum is also used by some authorities. These substances are carefully sprayed over the print. As the print is very soft and apt to crumble care must be taken. When the first layer of gum lac is dried, on the print, other layers can be added to reënforce it. When the print thus treated becomes sufficiently firm it is molded in plaster of Paris precisely like the prints in the hard earth.

If these prints are in snow the inspector begins by sifting over them a light bed of pulverized plaster of Paris. He uses a fine-meshed sieve. When he has covered the print with the powdered plaster of Paris he pours in his solution. For molds taken in snow or ice this solution must be as near a snow temperature

as possible, so he uses snow in the water with which the solution is made.

If the print in the snow is relatively hard—as, for example, a frozen print—the mold can be taken directly in plaster of Paris, provided the solution is made with snow water in order to keep it at a low temperature.

Hugoulin says that prints can be successfully taken with stearin. One has to warm the print by holding a hot iron in it. He then pours stearin into the warm print. For this process stearic acid is used. This may be obtained by placing paraffin candles in hot alcohol. The solution is then strained through a coarse-meshed cloth into cold water. This precipitates the stearin, which can be worked up at a moderate temperature. But this process is not generally used and is not equal to the plaster method.

He also suggests taking molds in snow with gelatin. But in order to prepare the gelatin for this process it must be soaked for twenty-four hours. This requirement makes it usually impractical; and, besides, the gelatin shrinks in drying.

It will be seen that this immediate and complete isolation of the theater of a crime and this careful preservation of evidential signs are of paramount importance in the solution of a criminal mystery.

Trial courts are not compelled to rely on the testimony of witnesses. Exact images of all evidential signs are at once available to examining magistrates, detectives, inspectors and criminal tribunals.

But it is in the examination of crimes committed by the forcible entry of buildings that the Swiss authorities particularly excel.

A large percentage of criminal adventures is accomplished in this manner. The burglar breaks into dwelling houses, shops, banks, warehouses, and the like, through a door or window. Robberies are almost always accomplished by breaking. The Swiss authorities have made a special study of such infractions. Their methods are so excellent that they ought to be understood by every criminal investigator.

When a crime has occurred in a building the Swiss authorities begin by examining the approaches to it for the same evidential signs likely to be indicated if the crime had been in the open. Roads, paths, walks, walls, hedges, steps, and the like, are carefully scrutinized. After this examination of the outside, the entrances to the building are examined. These are the doors and windows. It will usually be through a door or window that the criminal agent has gained access to the building. And it will be usually found that the door or window has been forced open.

If a door has been opened, and there appears no fracture, the lock is carefully removed to see if the door was opened with any form of false key or with any implement used to turn the key of the door in the lock. If the door has been forced—usually the case—the inspector begins a minute examination of all the marks on the broken door. If possible he will remove the door, take it to police headquarters, photo-

graph each of the marks and also the entire fracture, and have these photographs enlarged at least four or five diameters. A measuring tape will be included in each of these photographs, so that one examining the picture will have before him precisely the accurate scale of measurements. If the door or window cannot be removed it is photographed at the place, usually by artificial light.

Molds in wax are then taken of all indentations. These wax impressions are later recast in plaster, so that all the evidence of the fracture on the door or window is preserved for the future inspector or the magistrate or trial court.

The experts of the criminal-investigation department study the tool marks on the door.

A skilled expert very quickly determines whether the work is that of an accomplished housebreaker or an amateur. He will tell this by the manner in which the work is done and by the tools employed. The amateur will usually force a door with some implement from the kit of an ordinary workman; as, for example, a chisel or screwdriver. The accomplished criminal usually works with a special tool. Another indication of an amateur cracksman is that when he goes to break open desks, secretaries or locked drawers in a house he will usually accomplish this work with the same tools that he used for forcing the door or window at his place of entry. Such is never the method of the expert housebreaker. He will use a powerful implement to force the door or window and

a much smaller tool to break open desks or drawers inside. The presence of a variety of tools, shown by the marks, will, therefore, indicate the degree of skill in the criminal agent.

The point at which the cracksman begins his work also indicates his skill to the inspector. The amateur will always drive in his chisel at the lock and undertake to break the door at that point; while the expert will often begin at a point farthest from the lock—sometimes at the top or bottom of the door—thus using the spring of the door as a sort of lever. The skilled cracksman will often make a neat opening for his tool by cutting away a bit of the door with a sharp penknife.

All these evidences of expert knowledge are immediately apparent to the trained inspector. Fractures made by experts show usually only a few tool marks. An unskilled housebreaker will crush the wood of the door all about a lock, while a skilled cracksman will accomplish his object with but slight fractures to the door.

The Swiss expert is able to identify the mark of a chisel, screwdriver, jimmy, or any other implement used in such fractures, with the same degree of certainty that the average man is able to distinguish the track of an animal.

The care, patience and exhaustiveness of these investigations strike us with admiration. Some of them are so painstaking as to be almost incredible. But it must be remembered that the persons engaged in this

work are experts, highly trained, and of great experience. Some of these cases, translated literally from the Swiss reports, ought to be studied by everybody concerned in any way with criminal investigation in this country. The following text of one of these expert reports is typical of the method:

“On request of the *juge d’instruction* we were sent to the place of the crime. The thief introduced himself into the chamber of Monsieur B. by the aid of a picklock. He had broken open a cabinet in order to secure a gold watch. This cabinet was on a table in a room of which the door had been opened with a false key. The lock was intact. The cabinet of varnished pine was furnished with an ordinary frail lock, easily broken. The top and border of the cabinet bore several imprints made by a tool that had served to force it open.

“Further:

“The police had taken in custody on suspicion one A., who had in his possession a screwdriver, some skeleton keys and picklocks. Some of these keys and picklocks easily opened the door of the room in which the cabinet was found. The screwdriver, of which the blade was in a bad state, applied itself perfectly to the traces of pressure left on the cabinet. All the defects of the blade of this tool found their counterparts in the imprints on the wood of the cabinet. Photographs enlarged four times showed this very clearly. To test this proof we have made, with the screwdriver found on A., like fractures on a plank of

soft wood. These traces made by us are exactly like the traces left on the cabinet. They are a little clearer by reason of the plank on which we experimented not being varnished as the cabinet was. One can easily convince oneself of this by superposing an enlarged photograph of the tool on an enlarged photograph of the trace. All photographs which accompany this report are enlarged four times.

“Conclusion:

“Several false keys found on A. opened the door of Monsieur B.’s room. The screwdriver found on the same individual was the tool with which the cabinet had been fractured. A. must be the author of the crime committed in the chamber of the apartment of B.”

Examinations of imprints ought to be made by specialists and not by the ordinary detective. The authority at Lausanne advises an expert in police technic, who by a methodical study of a large number of analogous cases and by a knowledge of scientific procedure can utilize the traces of fractures found to identify directly or indirectly the author of the crime. He does not mean a skilled workman, such as a carpenter or a locksmith. These persons possess, it is true, a knowledge of tools of their trade, and, in certain cases, they can indicate the sort of instrument employed; but they are not suited to the delicate work of identification.

Reiss urges a trained expert for this work. And he cites the following instance as illustrative of the

danger of trusting to the skill of the ordinary police agent:

A burglary had been committed in a little village in Switzerland, and there were plain traces of implement marks on a broken window. At about the same time the police of the Sûreté arrested three well-known criminals. On one, the most dangerous of these individuals, they found a jimmy which seemed to fit the imprints made on the window. The justice of the peace, in place of submitting the traces of the implement to a special expert, contented himself with an ordinary agent of the Sûreté, a very good practical policeman, but not fit for a mission so delicate and demanding special knowledge. Naturally—says Reiss—the agent declared that this was the instrument with which the window had been broken.

When the trial came on the police agent swore to his conclusion. But the lawyer for the prisoner, who, in his leisure hours, had made a study of carpentry and taken a course in police science at the university, knew the methods of identification, and proved to the jury that the jimmy found on his client could produce almost every sort of imprint except those which had been found at the place of the crime!

In a striking case this minute expert examination served to establish the innocence of a man whose guilt was strongly indicated by the circumstantial evidence. The apartment of a merchant, during the absence of his family at the seashore, had been entered and robbed. A young man who had been in the

employ of the merchant, and was familiar with the apartment, had returned to the city about the time of the robbery. The robbery indicated one well acquainted with the interior of the apartment; and the recent life of this discharged employee led the police to suspect him of the crime. They arrested him in the warehouse of another merchant, where he was employed in opening cases. The tool with which he was at work at the hour of his arrest seemed to adapt itself exactly to the imprints that had been found at the place of the robbery.

The police were convinced that the young man was guilty. We shall see how the text of the expert report on this case established his innocence:

“On the entrance door are a number of imprints apparently from a chisel with a large end. The bases of these imprints are triangular in form. These imprints, coming from a tool with a flat surface without a border, are produced by the part of the handle close to the blade. Two or three of these triangular imprints found on the panel of the door correspond with imprints of the blade of the tool on the door-frame.

“On the door of the sleeping room and on the door-frame the same imprints are found that were on the entrance door of the apartment. Especially on the door one finds an imprint made by the handle of a large tool, very clear and very visible because the varnish was completely erased and broken. This triangular imprint, made by erasing the varnish from the

surface, shows how the surface of the handle of the tool entered in contact with the wood. The imprint in question is a double imprint—that is to say, the criminal has exercised two degrees of pressure in inserting his tool, thus giving the impressions of two imprints. The imprint is situated twelve centimeters above the fastening of the door.

“On the doorframe, and corresponding to the two pressures of the handle, one marks two imprints of the blade of the tool. These imprints are at unequal distances from the fastening of the doorframe, showing thus a displacement after the first pressure. The imprint the farthest away from the fastening is 2.9 centimeters. These prints are very clear and show a blade of 3.9 centimeters wide. The blade of the tool that had produced the imprints seemed in a good state and without defects. The lateral borders of the imprints show that the tool was flat—that is to say, did not possess a lateral bulging.

“The forcing in the blade and the aspect of the triangular imprint of the handle make the expert believe that the extremity of the tool has been, probably, a little bent.

“We must add that the attack on the two doors has been executed near the lock, which is the place where a door offers the most resistance. It is the manner of a novice and not of a skilled burglar, who attacks a door at the low or high part, where it is not held to the frame by a metallic support.

“In the meantime a chisel, which belonged to a

person named C. B. and employed at the house of M. S. to open boxes or cases, has been taken to the expert for examination. It is a chisel with a very broad blade, of a model not largely in use. This man, B., being the presumable author of the burglary, the undersigned has compared the instrument in question with the prints found on the place.

“The first comparison demonstrated to the undersigned that the size of the blade of the suspected tool was absolutely equal to that of the imprints of the blade of the large tool on the entrance door and the bedroom door.

“But this suspected tool possessed on both sides a bulging of the border, which does not appear in any of the imprints. All these imprints, on both the door-frame of the chamber and the entrance door, show that the extremity of the instrument which produced them had lateral angles clearer and more pointed than those of the suspected tool. The angle of the imprint is seventy-three degrees, while that of the tool in question is eighty-five degrees. This latter has also a more rounded blade. All the interior triangular parts of the tool possess, on both sides and on each border, a very strong bulging which prevents, by its prominence, any contact of the central surface of the tool with the wood. Such a tool would produce on the wood two strong grooves or creases, but between them the wood would be intact. In any case it would not produce a triangular imprint without lateral grooves,

which the undersigned has established on the doors of the apartment of M. S.

“The conclusion is that the tool used by the burglar, although having the same sized blade, is not the suspected tool found in the possession of C. B.”

All over America, everywhere, the authorities are constantly forced to make some sort of criminal investigation. The place at which crimes are committed must be examined in the hope of finding indicatory traces that will lead to the discovery of the criminal agent. The skill with which this examination is made will control the probable solution of the mystery. Not every community can have the services of a Lecoq or Dupin, an expert on deductive methods, to corner the criminal by some clever stroke. But it is possible everywhere to make a careful and intelligent examination of the place where a crime has been committed.

It is possible for every community to adopt the Swiss method in some measure. It can take steps to sequester the theater of the crime, and to preserve the evidential signs there; and it can encourage a careful, unbiased examination of these evidences. In time, with a little perseverance, a uniform and scientific method of criminal investigation could be established throughout the whole country.

The authority at the University of Lausanne in summing up a conclusion advises us that, though instruments of the same size and form produce imprints absolutely alike, nevertheless, if there is no peculiarity

in the blade, an absolute identification cannot be established. All the expert can affirm is that the imprint has been produced by an instrument precisely like that which has been under examination.

Sometimes the expert can identify the tool by a study—in enlarged photographs—of the striations produced by the slipping of the blade.

The edge of a tool passed with a certain pressure over a surface, such as a pane of glass covered with stearin, will produce a number of striations giving the microscopic peculiarities of the edge. A similar imprint is made when the blade of the burglar's tool slips on a doorframe or is forced along a varnished surface. In such cases the blade marks itself, if the nature of the wood permits, by striations more or less pronounced. One often observes these striations especially on varnished wood or any wood coated with a resistant paint. In the study of such imprints the expert should begin by making enlarged photographs of the striations. Then on a surface, as much as possible of the same nature as the wood of the door or the furniture fractured, he should make like imprints with the suspected tool. These should be photographed and equally enlarged. If the striations on the two sorts of imprints precisely coincide, the proof of the identity is made.

The best method of examining the edge of a tool is described by the Swiss authorities as follows:

One coats a pane of glass with a thin homogeneous layer of printers' ink. The blade of the tool which

has produced the original imprints is slipped over the glass under a certain even pressure. The striations of the original design thus imprint themselves on the glass by lifting up the printers' ink. The design of the peculiarities of the blade, on the glass, is extremely clear and precise. Enlarged photographs of this experiment, compared with those of the original imprint, enable an expert to determine conclusively whether they have been made by the same tool.

In this manner the blades of all sorts of tools, implements, hatchets, knives, and so forth, are examined by the authorities at Lausanne. The photographs of striations on stearin are not so convincing as those of striations on panes of glass coated with printers' ink, and present more difficulties of a technical character.

This method of producing striations for comparison on inked glass has shown in many cases that the imprints found at the theater of a crime were the work of tools taken on suspected individuals. And equally, in many difficult cases, it has served to demonstrate the innocence of the accused.

It is not to be hoped that the American people will undertake to train experts for criminal investigation, under any large scientific system, after the manner of nations like Austria. One who should suggest a national training school for such a purpose, or even departments attached to state universities, would receive no serious attention for his pains. And yet a prodigiously expensive court machinery, for the purpose of convicting criminals, is everywhere kept

up. We see the costliest effort made to convict the criminal and the feeblest effort to detect him. The whole method is bare at one end and overloaded at the other. It seems queer, to nations advanced in criminal investigation, that we see nothing incongruous in a system that expends vast sums in the expert trial of a criminal and leaves his apprehension to the desultory methods of a village constable.

CHAPTER VII

THE OLD RUSSIAN POLICE SYSTEM

THE young Countess Marie Baranow was traveling out of Russia. She was accompanied by an old servant, Ivan. It was night and the countess was alone in her compartment. As the train approached the Russian border the door of the compartment swung open and a man entered. He was bareheaded and in evening clothes. He seemed greatly fatigued, as from some extraordinary exertion, and he was wounded in the hand. He begged the countess to help him across the frontier.

"In an hour and twenty minutes we shall reach the boundary of Russia," he said. "If you do not help me I am lost."

The countess sent back her servant, retained his passport, and helped the mysterious stranger out of the kingdom of the White Czar.

These are the dramatic incidents upon which famous stories of unknown Russia have been skillfully built up.

Mystery lies everywhere about the late autocratic police system of Russia. It was a system forming an invisible net from the palace of the emperor to the re-

mote borders of the empire. Every variety of secret agent was included. It differed from all other systems of great national detective centers in that it undertook to clean the empire of undesirables by a wholesale dragnet.

There used to be a "black cabinet," it is said, connected with the "Third Section" at Petrograd, of so secret a character that the agents who worked under its supervision were not recorded by name; not even a number was used to indicate them. There was a glass door to this cabinet. The agents used to appear at certain times before this door, breathe on the glass, write their names in the mist which their breath formed on the cold pane together with the sum due them. The cashier inside opened the door and handed out the money. The agent passed his coat sleeve over the glass and the transaction was ended.

This extreme secrecy and this vast system of intricate internal secret service were forced on Russia, not so much by foreign enemies as by the revolutionary societies grouped vaguely under the name of Terrorists. These societies included some of the ablest and most determined persons in the empire, moved by the cardinal doctrine that the end they sought justified any form of violence.

A celebrated physician charged with being a member of these secret orders was arrested and sentenced to exile in Siberia. The crown princess endeavored to save him. She sent an agent into Siberia, and offered him his freedom provided he

would give his word of honor not to engage in any conspiracies against the government. He refused and died in the mines of Kara, in the most bleak and hideous penal institution in Siberia.

Against such determination only the most searching and drastic system of secret service could be of any value.

The women belonging to these secret orders were no less determined and dangerous. Vera Zasúlich with her own hand killed the chief of police in Petrograd. Sophie Perófskaya was one of the assassins of the Czar, Alexander II, and Madame Kutitónskaya, with a deadly determination, undertook to murder the governor of one of the northern provinces.

She had finished a sentence of penal servitude in Siberia and had been transported as a forced colonist to the Mongolian frontier. As soon as she arrived she purchased a revolver, slipped out of the colony, and hiring horses at the village made her way to the governor's residence. When she arrived she was arrested by a village official, who was not accustomed to seeing young women traveling alone in that part of Russia. She explained that she had come to call on the governor and was taken into his house. She sat there, with the cocked revolver covered by a handkerchief, until the governor came in, whereupon she rose and shot him.

It is a mistake to imagine that desperate persons are confined to low criminal orders.

The most persistent and deadly enemies with which

the secret service of any country have ever been forced to contend were the Terrorists of Russia.

The militant suffragists of England are mistaken when they imagine that they invented the hunger strike. The whole population of the political prison of Kara went on a hunger strike for thirteen days, in order to force certain concessions out of the governor. Thirty-five years ago it was the common resort of political prisoners and called by the police the *golo-dofka*.

One of the favorite devices of the old detective department of Russia was the police trap. It is a method known to all criminal-investigation departments, but its complete efficiency is attained only in those countries where the police have an autocratic control. The essential object of this method is to secure all the accomplices of a suspected criminal. The plan as practiced in Russia was to enter the house of the suspected person at an early hour in the morning and remove him to the police headquarters. No guard is put on the outside of the house, but the interior is taken over by the police. The house remains in appearance as usual. Every person who goes to the door is permitted to enter, but once inside he is arrested and held. The officers in charge of the trap have one inviolable order—to arrest and hold everybody who enters the house. So inflexible is this rule that members of the ruling house of Russia, generals in command of the army, and persons of the highest civic distinction, if they should happen to

enter the door of these traps, would be held by the officers in charge precisely as though they were porters or women from the market.

Kennan says, in describing this system, that a correspondent of the London *Standard* happened to hear that a number of Terrorists had been arrested in a certain apartment house in Petrograd. He thought he might pick up some interesting details for his newspaper, so he went to the house. He knocked on the door and asked if he might come in. The officer in charge politely permitted him to enter and he was allowed to go over the house, making such notes and inquiries as he wished. He then thanked the officer and started to go out. But here the demeanor of the police agent changed. He was sharply informed that the police were very glad to have him come in; but he was now under arrest and would be taken to the guardhouse.

He sat down at a window and looked out into the street.

Presently he saw the English correspondent of the London *Times* approaching. The man was looking up at the windows as though he were searching for a particular house. He called down to the *Times* correspondent and asked what he was searching for. The man replied that he was looking up the house in which the Nihilists had been arrested. The *Standard* correspondent assured him that he was at the right place. The *Times* man asked if he could come up. The *Standard* correspondent said he could,

and offered to show him all the points of interest. The *Times* correspondent entered the house and, of course, presently found himself under arrest in company with his accommodating associate.

Stories abound of the efficiency and also of the absurdity of these police traps.

Almost a whole regiment has been taken up by the police as they entered one by one to look for their disappearing companions.

Of all the systems used by the old Russian detective centers the police trap was the most dreaded by the secret orders. The hidden place of meeting of any of these revolutionary groups might be discovered by the police and turned into a trap on any night. Only by the most extraordinary system of signals was it possible for these groups to be certain that the police had not turned their place of rendezvous into a trap.

The detective departments of the late Russian Government had to deal with the most skillful secret organizations in the world. The devices at the command of the secret orders, especially their methods of communication, are of the most extraordinary character. An authority who has made the closest study of the Russian prison system has assembled these devices. The members of the secret societies of Russia assert that they can communicate with one another in any prison, no matter how carefully guarded. No method of prison supervision can prevent it. This communication is by a system of tapping, either on the

floor or walls of the cell in which the prisoner is confined. There are two codes, as described by the prison authority (Kennan). One is primitive and cumbersome, namely to indicate the letters in the alphabet by the number of taps, as, for example, one for A, five for E, ten for J, and so forth. This is a code of ancient usage. It was found too slow and complicated. A new system was presently devised.

Taking the English alphabet as an example, it can be easily illustrated.

Leaving out one letter, as for example K, and using the letter C wherever one would use K, the working alphabet is reduced to twenty-five letters. One wishing to put this system into practice will imagine a checkerboard of twenty-five squares—five columns of five squares each. He will place a letter of the alphabet in each of these squares, beginning with the top square on the left and going straight down the column. Thus, A would be in the first square of the first column, beginning at the left; E in the bottom square of the first column; F in the first top square of the second column, and so on. With the letters thus set in this checkerboard it is a very simple matter to spell out any word by indicating the column by one, two, three, four or five taps, a slight pause, followed by the number of the square in the column corresponding to the letter in the word to be spelled; thus G would be two-two, and so forth.

When the cells of the old stone fortress of Petropavlovsk at Petrograd were filled with Terrorists

they talked among themselves by this tapping system quite as freely as though they were assembled in one of their places of secret meeting in the Russian capital. The police tried to prevent it by putting the prisoners in alternate cells only. But the cells were so small and the stone walls were such excellent conductors of sound that even this device did not prevent the communication. The most inconsequential article was sufficient to carry on the code. A bit of broken cement, fragments of bone, a button or coin was all the prisoner needed. This code was also used when the materials were available to communicate by systems of pinholes in paper or other materials; or by marks on the surface of a wall, door, or any article that the prisoner thought would come to the attention of his friend outside.

It was also a device to unravel any article of clothing or prisoner's equipment and by series of knots tied in the threads to spell out messages according to this code.

Another system was to secrete a little fat from the prisoner's food, and when one passed a window, if exercise was allowed in the prison courtyard, to make a sign on the glass. When the warm grease from the prisoner's fingers froze on the glass the signal became visible. Bits of broken glass, if they could be obtained, were also used to carry these messages, which were invisible until the glass was frozen.

Systems of signals used by the friends of the prisoners to acquaint them with current affairs were

no less ingenious. The whole of the prisoners in the cells of a political fortress in Petrograd were kept constantly informed of what was going on in the capital by the simple device of a man reading a book by the light of a candle. From a certain window of the prison at night it was possible to see this man read his book in a room of a house opposite the prison. By the way in which the book and candle were handled as the man turned the pages and read, complete information was signaled into the prison, and by the tapping system it was conveyed to everybody confined in the whole fortress.

Not every Slav genius is engaged in political adventures. The highest order of criminal intelligence sometimes issues from Russia. When the Slav happens to be a genius he is beyond all others accomplished and convincing.

The extraordinary adventure, reported by Sir Robert Anderson, an Assistant Commissioner of the metropolitan police, could not have been accomplished by any ordinary member of the criminal class, It was the work of a convincing genius. The story of what this remarkable person actually accomplished with the members of a banking house in London would be regarded as the idle fancies of an after-dinner story-teller if its essential incidents did not rest upon the authority of this late official of the metropolitan police. The accomplished person engaged in this adventure appeared in London. He was able to make the acquaintance of certain members of one of the

oldest banking houses in that city. He convinced these hard-headed practical men of affairs not only that he was a learned chemist but also that through the medium of his experiments he had discovered a method of increasing the bulk of gold bullion.

It was a complicated molecular process.

It must be observed that this man did not pretend to transmute metals or to change lead into gold after the manner of the old alchemists. His process was chemically logical. He demonstrated it by synthetical formulas. He was able to show by a logical and scientific analogy that the weight of any substance and its bulk could be increased by introducing into its molecular structure certain other elements without changing the physical characteristic of the substance thus chemically forced to grow.

Perhaps the process could be best described as a method of metallic growth. A certain character of inorganic growth seems to be recognized by scientific authority. There appears to be a sense in which one may say that ledges of stone grow or that nuggets of gold grow. The tendency of the elements forming metals in nature to assemble and to form a central aggregate mass is well known. The process which this man carried to the London bankers was to force in a laboratory this growth of metals in nature.

The chemist asserted that, given a certain bulk, he could by his discovery cause this bulk to grow as nature caused a grain of gold to increase into a nugget. There was nothing occult about the thing. It

was merely that this genius had discovered a common process of nature.

It is impossible in a bald narrative to show how convincing an intelligence of the first order with a commanding knowledge of chemistry could make his process appear. Between such a man and the common sharper who every day imposes on persons apparently of sound common sense there is a great gulf. The dominating qualities of what we call personality or temperament are the controlling factors.

This man finally persuaded the London bankers to assist him in making a proper test of his discovery. He said that he had been able heretofore to conduct only trifling laboratory experiments, on account of his inability to command a sufficient bulk of precious metal. He pointed out that the virtue inherent in a nugget increased with the mass, according to a ratio that he had worked out. This theory was reasonable and convincing when advanced by a scientific man of comprehensive knowledge. It was well known that certain virtues in matter increase with the bulk according to established laws. It was not unreasonable to believe that the virtue in a grain of gold, which caused it to assemble the chemical elements in nature necessary to enlarge its bulk, would appear in a greater intensity as the mass of metal was increased. The chemist explained that the process would take two or three months and would require a large bulk of metal. He was willing to undertake the experiment under any conditions that the bankers imposed

on him, provided they put at his disposal a sufficient bulk of metal to insure the success of the experiment.

The final result was that the bankers determined to permit him to make the experiment, but under conditions which would conclusively insure them against any possibility of loss. They selected a house in London, fitted up a laboratory in a room of it, and provided the chemist with twenty thousand gold sovereigns. The man was permitted to put his chemicals into this laboratory. The bankers then put in the gold coins; but they took the same precautions to guard this treasure as though the laboratory were a vault in a bank. The room was practically transformed into a vault. All the exits were closed except one door. Guards were placed in the house, above and below, practically surrounding this vault, and in every direction the house and its approaches were all as rigidly guarded as the Bank of England. The only condition that the chemist insisted on was that his process should remain his own secret, and that he should not be disturbed by the entrance of any person into the laboratory until his labors were ended.

He was quite satisfied with all the other precautions taken by the bankers.

No one, under any circumstances, was permitted to enter the house except the chemist. Each time he went in or out he was thoroughly searched. It must be borne in mind that the bankers furnishing the gold for this experiment were not taking any chance of loss. The laboratory was practically a vault from

which nothing could be removed. There was no drain or waste pipe, no entrance except one door, and before going in or out of this door the chemist was carefully searched.

No detail of this surveillance was relaxed. Every time he went in or out he was searched. And at all times, as though one guarded the vault of the Bank of England, a rigid supervision was constantly maintained. For several months the man worked in the laboratory; then finally one day he failed to appear. Several days passed. Inquiries were set on foot; but no trace of the man could be discovered.

He had vanished out of London!

The bankers caused the door of the laboratory to be forced. They found bottles of various chemicals apparently undisturbed; but the twenty thousand gold sovereigns had disappeared. There was not a single gold piece in the laboratory. The whole bulk of several hundred pounds of gold coin had vanished. The discovery was amazing. It was incredible that this man could spirit away such a weight and bulk of metal. The guard could not have been passed, and the man had himself insisted that he should be searched every time he came out of the laboratory.

No detail of this search had ever been relaxed.

The guards knew that no coin had ever been carried out in the man's clothes or on his body. They also knew that no other person had ever entered the laboratory, and that there was no means by which even a spoonful of liquid could have escaped from

this room, which was practically a steel-lined vault. The thing was simply an insoluble mystery. Two facts alone remained—the chemist and the twenty thousand gold sovereigns were gone. The most acute police agents in Europe were called in. But they could offer no explanation of the mystery; nor was any one of them able to locate the vanished synthetic chemist.

The thing would have remained forever a mystery had not this obliging adventurer written a note to the bankers, expressing his thanks for the sovereigns which they had put at his disposal, and explaining that he had slowly carried them out of the laboratory packed in the hollow shaft of his gold-headed walking stick!

Accustomed to the common crooks and types of criminals of a low order, we are not apt to realize how much a criminal agent of the first class, an educated, accomplished man of the world, is able to effect. A further incident is cited by the same authority:

When Count Schouvaloff, chief of the Political Police of Petrograd, was crossing one day to England, he fell by accident into conversation with an accomplished gentleman. A channel boat is a cosmopolitan affair; one talks with his neighbor. The stranger had every aspect of a person of an elevated class; his address and manner were charming. As soon as he discovered the identity of Count Schouvaloff he explained that he had just been to Spain on a mission of the department of the secret

service of his country which was concerned with the treasury, and that he had got on the track there of an organization of forgers who were then flooding Russia with counterfeit ruble notes manufactured somewhere outside of the empire and smuggled in.

The count asked him to call upon him at the Russian Embassy in London.

The stranger appeared at the hour of the appointment. He gave convincing evidences of his connection with the secret service of his own country, but requested that his visit to the embassy be not made known to his government. His government was not concerned about Russian affairs and it might be difficult for him to explain why he had volunteered this information to the Russian authorities. He gave precise details about the organization of the forgers and their methods, and indicated that one of the group could be approached if a sufficient bribe were offered. He then rose, saying that it was a great pleasure to give Count Schouvaloff this information, which might lead to a discovery of the counterfeiters. He pointed out where the corruptible member of the criminal group could be found and how he might be approached. But he urged extreme care and the necessity for delicate negotiations.

The count inquired if the visitor would be willing to undertake this negotiation. The man hesitated. He was reluctant to undertake the thing. It would require a good deal of time and a long journey to Spain. It would involve considerable expense, more perhaps

than the count imagined, and it would take him away from the duties to his own government.

It was of vital importance to the Russian Government to get rid of these importations of counterfeit notes. Count Schouvaloff was on the trail of the thing and he was not to be turned aside. He finally overcame the objections of his visitor, and the man left the Russian Embassy in London with a check for one thousand pounds.

The power of such a personality to impress one is strikingly illustrated in this instance. So long as this extraordinary person was before Count Schouvaloff he was able to make him believe implicitly in the truth of his statements; but the moment his dominating personality was removed the natural wary instinct of the chief of the "Third Section" at Petrograd asserted itself. Within thirty minutes after the visitor had left the embassy the bank in London was directed to stop payment on the check. But the accomplished visitor was expeditious as well as convincing. He had the money on the check before the messenger from the Russian Embassy arrived, and he vanished with it. Neither Scotland Yard nor any agency of the imperial Russian police has ever found a trace of him!

The detective department of the old imperial Russian police seemed to confine itself to a single method. The dragnet system was everywhere relied on. It, therefore, happened that ingenious devices and masterpieces of finesse and strategy were in

Russia the work of those who were endeavoring to outwit and evade the cordon of police agents that everywhere made up the great imperial net.

Some of these plans are beyond belief elaborate and ingenious. The escape of Prince Kropotkin from the hospital of the military prison in Petrograd demonstrates how a series of coincidences may be made to dovetail after the manner of the process by which an elaborate combination lock can be made to open by a mechanical adjustment at a dozen points. The plan of this escape in its elaborate structure would be rejected as fiction if it did not rest upon the authority of Kennan.

Prince Kropotkin was a member of one of the secret circles in Russia. He was arrested and confined in the military fortress of Petropavlovsk. His health broke down and he was transferred to the prison connected with the Nikolaievsk Military Hospital. The secret circle to which he belonged determined to release him. There was a vacant house near the prison. This was leased by members of the circle. The prisoner, for his health, was permitted to exercise in the yard of the prison between the hours of four and five o'clock in the afternoon. There was a guard at the door to observe him while he took this walk. There was a sentinel in the street opposite the prison, and there was a second sentinel in a cross street.

The master intriguer who had charge of this affair waited until the prison authorities began to put in

their supply of wood. This meant that the gate of the prison inclosure would be open while the carts entered and discharged their load. For a long time before this day an elegant carriage had been accustomed to enter the street before the prison and wait there while the lady and gentleman visited the hospital. This visit was repeated so constantly and for so great a length of time that everybody became accustomed to the carriage in the street.

On the evening selected for the escape of the prince this carriage stood by the curb near the gate through which the wood carts entered. At four o'clock a young man approached the guard at the cross street and persuaded him to show him a room which this guard was offering for rent in his house. At the same time a drunken peasant approached the sentry in his box before the prison, engaged him in conversation, and told him that he had just purchased a marvelous device that would make an insect look as big as a dog. The sentry was incredulous, whereupon the drunken peasant produced a cheap microscope. The sentry put his gun down inside the box and helped the peasant look for an insect.

These arrangements meant that the guard in the cross street was now absent, the sentinel in the box disarmed, the carriage ready and the gate open.

These facts were signaled to the vacant house by a peasant who sat down on the curb opposite the prison with a hat full of cherries. The direction in which he threw the cherry stones indicated to the conspirators

that everything had turned out as they had planned it. The prince, taking his walk in the prison yard at this hour, was notified by the music of a violin played in the vacant house opposite the prison. This was the signal. He ran through the gate, entered the carriage and escaped. The whole city was dragged for him, and he eluded the net only by the daring device of boldly dining in a private room of the most fashionable restaurant in Petrograd.

Here were a series of events made to appear in their natural order as in life and to dovetail into a complicated system of precautions. That such an elaborate plan could be made to work smoothly and with a unity of design indicated an intelligence of the very highest order. Everything connected with this escape was artificially built up, except the one coincidence of the gates being opened to allow the wood carts to enter. Taking advantage of this one coincidence, the ability of the members of the secret circle to which Kropotkin belonged devised a method to meet and overcome every precaution of the Petrograd police, and to do this by a natural and unsuspecting series of events. Everything seemed to occur as in the ordinary affairs of life.

It is the first right of a government, recognized by all men, to protect itself. It cannot permit itself to be destroyed by a small group of persons, no matter how intelligent. The most democratic government rests upon the wishes of the majority of the people. The late imperial government of Russia was willed

by the Russian people. It was the form of government which they elected to maintain, and it had to protect itself against these secret organizations that undertook to attack it by violence. It was, therefore, charged with measures that seem harsh and autocratic to governments not menaced by groups of secret enemies composed of persons of the greatest learning and ingenuity.

We are not encouraged to believe that the Russian police inspector is the equal of the trained French official or even the Scotland Yard constable, if Anton Chekhoff's story of the deductive method in Russia is illustrative.

One morning a young man hurried into the office of an inspector of police and reported that his master, an officer of the guard who had been separated from his wife and lived alone, had been murdered. He was greatly excited. The inspector went with him at once to the scene of the tragedy.

When he arrived at the house he found the door to the officer's bedroom locked, the key on the inside. It appeared that no one had entered the bedroom. The servants, unable to awaken their master, had concluded that he was dead. The inspector found the door uninjured. He had it forced open. The bed had been tossed about, the pillows on the floor. On a table near the bed was the officer's watch and some silver coins. There was no furniture in the room except a table and chair. Under the bed were a number of bottles. The officer and his clothing were gone

except for a single boot that lay on the floor. The inspector examined the room carefully. The only thing he found was a partly burned safety match. It was known that the officer did not smoke and that he used only sulphur matches for his candles. There were the marks of teeth on the pillowcase and the room had the aspect of a struggle. He examined the garden below the window. The grass and some bushes had been trampled. He found a piece of cotton on some twigs and some fine threads of dark-blue wool. At some distance from the window, in the garden under a bush, he found the second top boot.

The inspector, bearing in mind other cases in which men had been murdered and their bodies removed, came to the conclusion, from the evidences, that the man had been strangled and his body taken out through the window.

The fact that the watch and money were undisturbed showed that the purpose of the crime was not robbery. The safety match indicated that some person above the ordinary was connected with the affair, since peasants or common servants would have only sulphur matches. The fact that one boot remained in the room made the inspector believe that the guardsman had been killed while he was undressing. The finding of the other boot in the garden indicated that this one had been partly removed and had fallen off while the body was being carried away.

The inspector in his report reconstructed the crime: On the evening in question the guardsman, who

had been on a prolonged debauch, went to his room drunk. As he sat on his bed, taking off one of his boots, he had been attacked and smothered with the pillow. During the struggle the candle was knocked over, afterwards one of the assassins relighted it, striking a safety match, which had been found on the floor.

When the man was dead his body had been taken out through the window and carried across the garden. As it passed the lilac bush the remaining boot, partly removed by the man before he was attacked, dropped off.

The inspector, having arrived at this deduction, determined to locate the safety match, which seemed to be the distinguishing clew. He went to all the shops in every direction; but not one of them carried in its stock such a thing as a box of safety matches. Finally, at some distance from the scene of the tragedy, he found a shopkeeper who had a single pack of such matches. It was a broken pack, with one box missing. The shopkeeper remembered precisely who had purchased this missing box. It was the wife of the guardsman, a big, masculine woman of unusual physical strength. She lived near the apartment in which the guardsman had been murdered. It was now night, but the inspector went at once to the woman, charged her with the murder of her husband and demanded to know what she had done with his body. She seemed in terror.

"I know all about it," he said. "Take me at once

to the place 'here you have concealed your husband!'

She got a key from a nail on the wall and went out into the courtyard. The inspector followed. They finally reached a little house at the end of the garden. The woman unlocked the door and they entered. By the light of a candle the inspector saw the long body of a man lying motionless on a bed in the corner of the room. He approached to examine the murdered body.

But here his deductions went to pieces. The supposed dead man sat up, and the explanation of all the tragic incidents appeared. The guardsman was going to bed every night drunk. His wife heard of it, and went across the garden to his window to remonstrate with him. He put the window up and, seeing who it was, threw his boot at her. She was a resolute woman of masculine efficiency. She climbed in through the window, thrashed the drunken guardsman soundly, dragged him across the garden and locked him up in the bathhouse, where she determined to keep him until he should be sober enough to go about his affairs.

He had been thus a prisoner for one day, while with swift deductions the inspector had worked out his complicated murder.

CHAPTER VIII

UNSYSTEMATIC AMERICAN METHODS

IT is the opinion of a continental critic that our police system in America would be more efficient if those at the head of it could expect to be rewarded with decorations of honor. The titles of the Police President of Vienna used to fill half the page of a legal document.

Mr. Jefferson excluded titles of nobility somewhat early in our national life. And we are not encouraged to believe that the average American is concerned about decorations. The point of view of the elder Dumas, as reported by M. Claude, is more characteristic of the American official.

On the morning after Dumas' theater went into bankruptcy the Prefect of Paris called on him. He pointed out that the law did not permit a bankrupt to wear in his buttonhole the red ribbon of the Legion of Honor, and requested him to remove it.

The undisturbed Immortal plucked out the ribbon and tossed it on the table among his manuscripts. Then he pulled out a drawer, filled to the top with crosses, medals and decorations of all the courts in Europe, and presented it to the Prefect.

"Monsieur," he said in his big, careless manner, "what will you give me for all this hardware?"

Criminal investigation in European countries is a governmental career. The office of Commissioner of the Metropolitan Police, in London, is one of English distinction. The heads of the police systems in Germany and Austria used to be but one grade under what we would call Cabinet positions. The salaries and perquisites attached to these offices are considerable. The Commissioner of the Metropolitan Police receives over twelve thousand dollars in pay, some five hundred dollars in perquisites, and a pension on retirement. The commissioners of cities in Germany, like Hamburg, used to receive some sixteen thousand marks. The Commissioner of Police in Paris got the thousand dollars a year and a residence, together with a pension paid by the government upon his retirement.

It will be seen that the European plan contemplates a permanent official. In most countries the appointment is practically for life. No such permanence is to be found in any American system. With us the tenure of such offices depends usually upon the vicissitudes of swiftly moving political fortunes.

The method of every foreign detective center is found in some degree in operation in this country. A single case will often show a variety of these methods combined. As the legal procedure in our criminal courts is English in its origin, we find our verdicts,

like those in England, founded usually on some dominant distinguishing clew.

The bank cracksmen who looted the national bank at Northampton were traced by a piece of wrapping paper picked up in an abandoned schoolhouse. The wrapping paper bore the name of a country merchant. The robbers had purchased material for their masks at this country store and they were traced by this piece of paper.

It was in this robbery that the cracksmen used an ingenious device to obtain the combination of the safe from the captured cashier. They had gone to the cashier's residence in the night, put a guard in his house, bound him to a chair and, with a pistol to his head, demanded the combination of the safe. The cashier, of course, gave them incorrect numbers. They wrote them down. But they were not to be misled by this subterfuge. They waited a while and then suddenly called on the cashier to repeat the figures. He was unable to do so and the robbers knew at once that the combination given was false.

The police discovered a fire in a storeroom in a Western city. They broke into the storeroom, but were unable to locate the origin of the fire. Finally one of them noticed a ray of light shining through the keyhole of a desk. The desk was broken open and they discovered two or three bits of candle almost burned down. The desk was locked. The proprietor of the store was the only person who had a key. It was therefore certain that the man had set fire to the

store himself. He had put bits of candle outside to start the fire, and then to make sure he had locked these lighted bits in his desk. The bits outside quickly started the fire. On account of the lack of oxygen in the closed desk the bits of candle there burned more slowly, and so it happened that they remained as a distinguishing clew after the fire in the store attracted the attention of the police.

A criminal investigator in Colorado found a man dead in his bed, shot through the forehead with a revolver. The police were inclined to believe that it was a case of murder. The suspected person explained that the man had been killed by a revolver which had fallen from a position above where the dead man slept. But the criminal investigator, when he examined the case, made an extraordinary deduction. He observed that the face of the dead man was tattooed with powder stains. This meant that the weapon had been held very close when it was fired. He observed further that these powder stains were round the border of the forehead and the outside rim of the face.

This seemed to him peculiar. How was it possible for the outside edge of the face to be thus tattooed with powder stains while the eyes and center of the face were unmarked? He concluded that the central portion of the dead man's face was clean because it had been protected, and it occurred to him that it was thus protected because the dead man had put up his hands to protect his face when he saw his assassin

was about to shoot him. If this theory were true the backs of the dead man's hands would be tattooed with powder stains like the edge of his face. This proved to be the fact; and the person who explained the man's death by the falling of the revolver was convicted of his murder.

The New York police picked up a pair of gloves at the scene of a homicide. The finger of one of these gloves had been slightly cut. This cut was on the outside of the finger. As the gloves were too small for the dead man, the police naturally concluded that they belonged to one of the assailants. They were of the opinion that more than one person had been engaged in the assassination, because the face and the back of the head of the assassinated man were both injured, but with implements of a different character. The criminal investigator was of the opinion that two assailants had attacked the man simultaneously and during the assault one of them had cut the other's finger, by accident, through the glove. This was a distinguishing clew. They had only to find a man with a cut finger!

A little reflective deduction after the manner of Scotland Yard cleared up a baffling mystery.

The owner of a cattle ranch had disappeared. No trace of him could be found. Sometime afterward a band of cowboys riding a trail along a river noticed a place where a fire had been built. This was no unusual thing. Men were camping on this trail from time to time, and, of course, building fires. But it

seemed to one of the cowboys that this had been an unusually large fire, as though a heap of driftwood had been burned. It resembled a log heap and not a camper's fire. Little things attract the attention of men who live in the open.

They stopped to look at the fire by the trail. Then they noticed a peculiar thing, that the ashes from the fire had all been shoveled away for a distance of some twelve feet in diameter. The red earth showed the intensity of the fire, and bits of burned logs and driftwood were about. But why had the ashes been removed? They got down from their horses to consider the problem. Some of the men thought that the ashes had been carried away as fertilizer for a garden; but there was no garden within a reasonable distance, and they concluded that the ashes had either been scattered or shoveled into the river. There was an eddy of dead water in the river at this point and, caught in the reeds round its border, they found bits of charred wood. They fastened a tomato can to a pole and fished the bottom of the river in this eddy. Among the things they brought up were charred buttons and fragments of bones. From this beginning the murder of the ranchman was discovered and his assassins convicted.

In another instance a like mysterious disappearance was cleared up by a foreman because he happened to remember how the pioneers with La Salle, in the old frontier stories, were accustomed to hide any article which they wished to conceal from the Indians.

A ranchman's horse had come in one night without the rider and the man could not be found. It was thought that the ranchman had been killed by suspected cattle thieves. No trace of his body could be discovered. The searching party found a big camp fire that the suspected cattle thieves admitted they had made. But they explained that they were hunting at the time and denied any knowledge of the missing ranchman. The foreman who had remembered the pioneer stories put a crew at work to dig up the bed of the camp fire and discovered the body of the dead man buried under the ashes. It was a custom of La Salle and his men when they wished to hide any article from the Indians to bury it under their camp fire.

Another extraordinary case was run down by an American investigator on a single clew.

A wealthy old farmer in an Eastern State lived alone. He was known to receive each year a considerable sum of money in gold. He had no deposit in any bank and it was evident that he must keep this gold about him, concealed somewhere on the premises. The man was an eccentric person. He enjoyed the reputation that the mystery of his hidden treasure gave him in the community. He left no one in his house. When he went from home, frequently the door stood open, as though to invite thieves to search for his treasure. They did search for it, more than once in his absence, but no one of the thieves ever discovered where his gold was hidden.

One day, however, the old man was found murdered in his house.

A row of tallow cakes, which sat conspicuously on a shelf of the mantel, were found broken open on the hearth. These tallow cakes, molded in a crock, were the storehouse of the old man's treasure. Each year he had converted his earnings into gold pieces and concealed them in the center of one of these cakes of tallow.

The criminal investigator determined to depend on a single clew. He did not know the dates or denominations of the coins. All the banks in the country were directed to examine the gold they might take in for traces of tallow on the milled edges of the coins. Sometime later a questionable character in the community offered a gold piece to a railway agent in payment for a ticket to a Western State. The agent knew of the direction given to the banks. He gouged a bit of tallow out of the milled edge of the coin with his thumb-nail, and the assassin was apprehended.

An attempted robbery in New York reads almost like Conan Doyle's story of the Red-Headed League:

A bank examiner was at work one afternoon verifying the currency in the cashier's drawer when a bit of plaster dropped on the desk. He looked up at the ceiling and saw a tiny crack in the plaster. The room above the bank had been leased to a pretended tradesman. The bank examiner summoned the police, broke into the room above the bank, and upon taking up the carpet found a hole cut through the floor. A robbery

had been carefully planned. Implements and devices were found concealed in the room showing that it was the intention of the robbers to let themselves down into the banking room, drill the door of the vault, cover it with heavy blankets and blow it open. It is interesting to remember that the custom of banks to have the door of the vault illumined at night, so it can be seen from the street, does not always prevent the skillful cracksman from accomplishing his robbery. In one reported case the robbers took the precaution of painting the door of the vault on canvas. They set this canvas up before the real door, while they worked behind it to force the vault open.

But the American detective centers do not always follow the distinguishing-claw method of Scotland Yard. They have sometimes used the diplomatic method of Paris quite as cleverly as any inspector of a department of the Service de la Sûreté.

In a famous trial in California a prisoner was endeavoring to conceal his identity. The authorities in charge of the matter undertook to break down his pretension by an ingenious device. It was a long, bitterly contested trial. The plan was that every day a stranger from some part of the country where the prisoner had lived under an alias should enter the court room, take a front seat, attract the attention of the prisoner, nod to him in friendly recognition, and then quietly slip out of the court room. This thing went on day after day.

Bartenders who had sold him drinks; drivers of

cabs who had taken him about; women to whom he had made love; men who had gambled with him; clerks who had sold him articles; waitresses in hotels where he had lived—a stream of these persons came, one after another, as by chance, into the court room. The ceaseless pressure of the thing finally broke the prisoner down and the trial resulted in a confession.

Another case illustrative of the diplomatic method was skillfully handled.

Two men lived on an estate in the country. One of them was found dead on a certain evening in the house. The other had been absent on that day and returned, as he reported, to find the assassination accomplished and the house looted. There were some tracks leading across a bit of wet lawn from the house to the woods. The criminal investigator suspected the surviving partner. On account of the unequal pressure in the tracks he was of the opinion that they had been made as false evidence. The suspected man said that a suspicious character had been hanging about for some time. And such is the imitative instinct that other persons pretended to have discovered some trace of this mysterious assassin.

The criminal investigator was not satisfied and determined on a stratagem.

A traveling clairvoyant presently appeared at a neighboring village. He announced that he could communicate with the dead man through the medium of the surviving partner if that person were willing to assist him in the endeavor. The community was pres-

ently excited over this pretention of the clairvoyant. The suspected man was afraid to refuse. He was not concerned about the supernatural powers of the clairvoyant, but he was concerned about the effect on the community of a refusal to assist in the discovery of the assassin. He went to the clairvoyant. This man, an accomplished detective, pretended to hold intercourse with disembodied spirits through the medium of slate writing. He darkened the room and made his test.

The first effort was a failure. He did not look at the writing himself, but handed it to the suspected man. It was only a jumble of marks. The man said so and rubbed it out. The clairvoyant asked him to concentrate his mind on the effort, made another attempt, and again handed the slate to the suspected man without looking at it. The suspected man carried it to the window. This time it contained a message: "You are in great danger; hide it again to-night." The man was astonished; but he was equal, he thought, to the situation. He told the clairvoyant that he could not make out the jumble of marks on the slate, rubbed out the message and left the village.

That night he took the boot, with which he had made the tracks, out of the hollow tree in which it was concealed and buried it in the ground at the edge of the woods. He was engaged in this labor when the clairvoyant and the criminal investigator, who had been watching the house, appeared and placed him under arrest for the murder of his partner.

One of these cases handled in the diplomatic manner occurred in the South.

A wealthy farmer had been instrumental in the conviction of a notorious character for arson. The criminal had been sentenced to the penitentiary for a number of years. He threatened at the trial, and afterward, that when he should be released he would kill the man who had been instrumental in his conviction; and from time to time during the period of the sentence he continued to send word to the farmer that when he was released he would carry out his threat. As the time approached for the release of the convict the farmer, through fear for his life, sold his property and moved into a distant state. Some years later he was found shot to death in his field.

It was a community distant from the one in which the difficulty with the convict had arisen. The matter would have remained a mystery but for the fact that the dead man left a will, in which he called attention to the fact that if he should be found dead it would be the work of the escaped convict, giving his name. He set aside a certain sum of money to be used in the prosecution of the assassin, and said that he would be known by a gunshot wound on his arm which he had got in an effort to escape from the penitentiary.

The criminal investigator was certain that the assassin was in the community. He reasoned that he would be afraid to make himself conspicuous by any change until after the affair had blown over. The circuit court of the county was in session. The judge

instructed the grand jury to investigate the mysterious assassination. The whole community was present at the court sitting. The criminal investigator thought the assassin might be in the crowd. As the people were leaving the court room, which was on the second floor, the criminal investigator stood at the head of the stairway and suddenly called out the name of the suspected convict. A man going out through the hall turned. He was immediately arrested and his arm examined for the bullet wound. The scar was found. He was identified and convicted of the murder.

Police methods in America are necessarily varied. Each municipality has its own system. The detective service of the Federal Government is arranged by departments. The Department of Justice, the Treasury Department, and so on, have their detective branches of the general Secret Service. These branches in their particular features are as efficient as any.

A vast number of frauds are run down and broken up by the Secret Service. Some of these frauds, in spite of the wide publicity constantly given to them, seem to continue to flourish. Inspector Cahalane of the training school of the New York Police Department directs attention to two of these frauds constantly practiced. The swindlers engaged are shrewd and skillful. The persons they select for victims are usually those who can command a certain amount of ready money and have a reputation in their com-

munity for being willing to take a chance on "sure-thing gambles."

The victim is introduced to a person who pretends to be the superintendent of one of the great telegraph companies. The usual plan is for the sharper to take his victim, on some pretext, to an upper floor of the telegraph company's building. Here, by accident, they meet in the hall the superintendent of the company. This man is in a hurry, as it is during business hours, but he is glad to meet his old friend; and he suggests that they take lunch together in a neighboring café. It is a friendly luncheon. At the end of it, after the way has been skillfully prepared by appropriate intimate talk, the superintendent promises to hold up for a few minutes the result of a certain horse race that afternoon. He will telephone the name of the winner to his friend in time for him to place a bet on it before the result of the race is announced by the telegram from the track. The victim is then taken to what appears to be a first-class pool room. In it are well-dressed men placing large bets on various races. These persons are pointed out to him as well-known sporting millionaires and famous horse owners.

The whole thing is staged for the victim's benefit and, of course, is entirely false.

The victim is then taken to a near-by telephone booth, where the message from the superintendent is to be received. At the time indicated the superintendent telephones the name of the horse, and

the men hasten into the pool room to place a bet. This preliminary bet is apt to be small. The horse named wins and the victim obtains his small wager.

That evening when the superintendent of the telegraph company meets the victim he is astonished at the trifling bet. The result is, in the end, the superintendent agrees to hold up another race, and the victim arranges to obtain all the money he can get in order to bet it on a sure thing. When the great "killing" is made, and the stripped victim goes back to consult with the superintendent over the extraordinary mistake, the pool room disappears behind him and the superintendent is no longer attached to the great telegraph company.

Sir Robert Anderson used to say that the persons who were duped by get-rich-quick schemes were always those who were attempting to take advantage of somebody else. It is upon this instinct to obtain something for nothing, or by sharp practice to defraud another, that the American sharper always depends.

"The sick-engineer game" is based on this principle.

The victim is taken downtown in New York into one of the great office buildings near the Wall Street district and introduced to a broker. This introduction is all managed as a matter of the merest inadvertence. The broker is a pleasant person, and during the course of the conversation he mentions a

certain mining stock or some industrial stock that has suddenly become exceedingly valuable. He names a very large price that he would be willing to pay for this stock if he could happen to find any of it. Nothing more is said about it. The victim and the sharper go out.

That evening on their way to the theater the sharper remembers a friend of his, a mining engineer, who is ill, and they stop in a furnished rooming house for a moment to call on the sick man. The conversation presently goes round to the value of mining stock. It happens that the sick engineer mentions the very stock the broker wants. He evidently does not know anything about its sudden increasing value and he offers to sell all the stock he holds for a small sum. The victim sees a chance to make a lot of money by buying this stock and turning it over to the broker. So he gets away from his friend a little later, slips back and purchases the whole of the sick engineer's stock.

The inspector of the New York police says that this game is usually arranged for a Friday or Saturday evening after the Wall Street broker will have left for the day.

Monday morning, when the victim goes downtown to turn the stock over to the broker, he discovers that this person has hired desk room in the building for one day only and has disappeared. He hurries uptown to the room of the sick engineer; but here he also discovers that the invalid has gone away without leav-

ing his address, and, of course, the stock he has purchased is worthless.

Like these are the Spanish Prisoner Fraud, the Confidence Trick, and innumerable gambling swindles. A form of the American gold-brick game has been worked over and over again in England.

After the death is announced of some wealthy person a letter is received from America addressed to him. It is opened by his relatives. It is from a man in a well-known mining region of the United States or Canada. It apologizes for a long silence, but explains that the writer had waited until he was able to repay a sum of money which he had borrowed. He goes on to say that he has finally struck it rich and is ready to return the loan. It was not a very considerable loan, but the writer is very grateful, because it helped him over a bad time and enabled him to hold his claims until he had made a strike.

The relatives of the dead man of course reply, saying that they had never heard of the loan, that the dead man's papers contain no reference to it, and so on. This letter brings a fulsome answer. The writer says that the dead man evidently intended to release the loan to him, since he kept no record of it; but he is not to be outdone in generosity. He will return it. He now has enormous wealth in sight and nothing can give him greater pleasure than to share his good fortune with the family of his esteemed benefactor. A few hundred pounds will buy undeveloped claims near his strike and insure his friends a vast fortune.

He asks them to send some competent person to New York, where he will show them samples of the ore. The result is that one of the family goes over to New York. He is met there by the shrewd sharper. He is shown ore of unquestionable purity. Sometimes he is taken West to the claim, which has been carefully salted, and the result is that the heirs of the dead Englishman and their idle money are permanently parted.

Variations of these swindles are constantly being perfected. But they all have the same underlying base—either an opportunity easily to get the better of some one else, or a fortune by the accidental discovery of great natural values unknown to the public and to be obtained by secret manipulation. Every confidence game can be determined by these two simple tests.

The one difficulty in America with municipal detective centers is that they are under political control. The heads of these departments are usually removed when the opposition comes into power. To remain any time in office an American official would have to emulate the example of the Parisian, De Morny, who was at the head of a department depending upon public favor.

One evening an anxious adherent rushed into his his office.

"Monsieur," he cried, "I have accurate information. There is going to be a clean sweep here."

"Ah, my friend," replied De Morny, give yourself

no concern. Wherever there is any sweeping to be done I always manage to be found on the side of the broom handle!"

Nevertheless, in spite of these disadvantages American detective centers are beginning to take on the thoroughness of the German system.

Experts are assembled for the investigation of theaters of crime. Care is taken to observe finger prints and to obtain molds of footprints and marks of burglar tools. Our laboratories are able to give correct data on bloodstains. In the investigation of questioned documents, forgery, Black-Hand letters, and the like, a very considerable advance in method has been made in the last few years. Experts have shown us how to care for questioned documents and properly examine them.

Frauds have been detected by the fact that part of a writing followed a fold in a paper when the ink line crossed the fold. Properly examined, one could say whether the paper had been folded before or after the line was written, although the line was not more than a hundredth of an inch in width. Often where the writing crosses a fold a bit of ink will have passed through the paper. The eye would not discover this; but very greatly enlarged under a microscope the evidence would at once appear.

Documents are produced which it is pretended are of great age; but a knowledge of the change of color of commercial inks at once shows them to be fraudulent. The eye might be questioned; but the use of

the microscope puts the thing beyond doubt. A document may be thus registered, its color ascertained at a certain time and then taken later for comparison. Often a document is changed or altered, and the point where the alteration touched the inks of the original writing will appear under the microscope. It will show which of the lines cross and which are laid down on top of the other. The difference in inks, if writings have been changed, will sometimes appear in a tiny sediment, which a proper microscopical examination will disclose.

Certain experts in this country are now able to make as good an examination of documents connected with criminal affairs as those in the service of the German detective centers.

The Secret Service, under the Post Office Department, has made a careful study along this line.

Checks, drafts, and so on, have been identified by the peculiarities and identifications along the edges of detached stubs. When enlarged these indentures are a perfect method of identification. Stamps from a certain sheet have been identified by this process. The line where a sheet of paper is torn off from another sheet has proved to be a complete identification.

In one case a note for a large sum was shown to have been written on a page detached from an autograph album, which had originally contained only the signature of the pretended maker. The note had been written above the signature. But for a careful microscopical examination along the line of cleavage

where the paper had been torn the fraud would not have been detected.

In some cases sums for one hundred or one thousand dollars have been raised to seven or nine so skillfully that the change could scarcely be detected. But under a proper microscopical examination the top of the seven or the loop of the nine plainly appeared laid down on the other writing.

The efficiency of this German scientific method on one occasion saved an innocent man in Colorado.

A prisoner was charged with murder. He maintained that he was innocent. He said that he had been attacked and that during the struggle a pistol had been discharged, resulting in the death of his assailant. The authorities held that he had deliberately shot the dead man. The truth depended upon whether or not it could be shown that there had, in fact, been a struggle.

A competent criminal investigator who happened to be at hand pointed out that the brand on the dead man's face from the fire of the pistol was below the bullet hole. This meant that at the time the weapon was fired the pistol had been held upside down. He demonstrated that in ordinary pistol fire the brand was always above the bullet hole if the weapon were held in a normal position—that is to say, the brand in such pistol fire is always above the line of sight on the barrel, because the force, in pulling the trigger, causes the muzzle of the weapon to jump up, and this tendency results in the brand being always above

the bullet hole. It was, therefore, clear that the story told by the prisoner was true. The brand being below the bullet hole showed that the weapon had been upside down at the moment it was fired.

An assistant commissioner at Scotland Yard, with the complacency of one at the head of an infallible machine, used to say that all the strange, unsolvable mysteries occur in America. Some of them do.

A newspaper reporter, it is said, was passing along the street early in the morning before a great office building in a Western city, when he saw a man lying on the sidewalk. The man seemed desperately injured and the reporter at once put in a call for an ambulance. A policeman and several persons appeared when the ambulance arrived. The surgeon examined the man. "You don't want an ambulance," he said; you want the dead wagon." The ambulance returned and headquarters was directed to send for the body. Just at that moment one of the windows, several stories above in the building, was suddenly thrown up and a woman appeared.

She screamed frantically and gesticulated to the people in the street below.

The police who had appeared, and all the crowd, including the newspaper reporter, rushed into the building. The elevators were not running. They were compelled to go up the stairway. There was some difficulty in locating the floor upon which the woman had appeared. Finally they discovered the room, with the window up. It was an unoccupied

room in the office building. The woman was not to be found in the room. She was not to be found anywhere in the building; and, what was more mysterious, when they returned to the street the dead man had disappeared! And from that day nobody ever discovered a trace of the woman or the dead man, or any manner or form of evidence of a crime.

All the paraphernalia of the ghastly drama simply vanished out of human knowledge.

CHAPTER IX

METHODS OF PROFESSIONAL CRIMINALS

NOT all criminals have the courage to do murder," said the vitriolic author of *Degeneration*; "some of them write books and paint pictures."

It was a thrust at license in literature and art, but in a certain sense it is broadly illustrative. There is no criminal class. Lombroso, the Italian criminologist, advanced the theory. But he might as well have stood for a red-haired class in the human family, or a class of bowlegs. We now see that the criminal may appear in any class, and from a variety of causes.

Here the horizon has broadened.

The English law, influenced by the theologians, held all crime of a common origin; "moved and seduced by the instigations of the devil" was the explanation in the indictment at common law. It was the devil who incited to crime, and the law courts in dealing with the criminal were striking always at this devil class. It took three hundred years for the devil to get out of the law courts. The recognition, in the law, of his dominion and influence was marked; in the church it was appalling. The Virginia judges in

their charges warned against him, and the circuit riders of the Alleghenies in their sermons on hell-fire called him "a powerful feller."

Powerful he was if he incited to all crime!

I have said that we have ejected him out of this dominion. But the claim is perhaps excessive. The greatest gain in modern criminology is the tendency to differentiate offenders—to group the insane, the feeble-minded and the ill and to remove them from consideration as criminals; after that to consider offenders from impulse apart from offenders from deliberation. Thus we narrow down the suzerainty of the devil.

Impulsive crimes are often only sorts of awful accidents. Man has barely ceased to be an animal; he has just got the hair and the tail off, and in moments of weakness and in the paroxysms of emotion the most advanced among us will not always be able to keep his feet.

But when we have grouped offenders and determined their inciting stimuli there will remain a residue for which the explanation of the devil seems as good as any. I mean "the old rounder," the physically sound intelligent person who is determined on a predatory life. Every judge of a criminal court is familiar with this individual. He is the despair of the criminologist. He is not to be reformed or changed.

In olden times he was the leader of outlaws. To-day he is at the head of criminal groups; and it is

the force of his determined predatory character that assembles and unifies the weaker vicious elements opposed to law and order. We take him and punish him, but from his point of view he is taken as a prisoner of war. We hold him as an enemy is held in the detention camp. But his allegiance to the devil—if we may retain that symbol—is unshaken. And he returns to the underworld as the captured Iroquois returned to his tribe, with a greater honor for the deprivation, and a whetted impulse for revenge.

The records of our criminal courts abundantly illustrate this fact. The cases are not far to seek. For example, there was before the District Court of the United States on April 9, 1917, at Nashville, Tennessee, one of the most celebrated professional criminals in this country. This man's correct name is perhaps, unknown. Names in the criminal zones mean nothing; titles alone are distinctive. He was called the King of the Yeggmen in the underworld, and Old Bob in the Government secret service.

This man's criminal record reads like a page of statistics. It is said that he has been the inmate of forty-five prisons. During a period of twenty months, once in his career, he robbed eighteen post offices. He was a shrewd, hardheaded, intelligent criminal. It was his theory of life that labor was the last resort of the feeble-minded, that morality was a form of fear, and that the benefits of life belonged to the person who had intelligence enough to get them.

With a keen, active mind and this theory of life, the

man's career is worth the consideration of everybody who would not evade the problem that our criminal element presents to us. It is also a sermon on fair dealing. If, with the benefit of every trick, every device, every subterfuge of criminal cunning, he wholly failed in the life that he undertook, what folly it is for the average person to imagine that he can go contrary to the moral requirements of society and escape disaster!

In the latter part of his career the yegg confined himself almost entirely to post-office robberies. His reason was that if he were apprehended he would usually receive only a small sentence. Stamps were as good as money; he could dispose of them through a fence at Coney Island for ninety cents on the dollar.

The secret-service men soon became familiar with his methods: He would first locate a blacksmith shop in the town in which he expected to make the robbery; after that he would go to the post office and buy a postal card. This gave him an opportunity to look through the window and locate the safe. If the post office was in a small town where there was no Federal building he usually undertook to rent a room above it. In order to do this he would pose as a photographer, and his explanation was that he wished to be near the post office because the public would there be more likely to see his advertisement and be attracted to his place.

If he was able to rent the room he would cut through the wall floor into the office; if he was not

able to rent it he would break the padlock on the blacksmith shop by putting a piece of gas pipe through the bow of the lock and prying it off.

It is worth while to recall here that the European police have always objected to the American padlock for this reason; any criminal could break it by putting an iron rod thus through the lock and twisting it round. It would be interesting to know whether this King of the Yeggmen learned the trick himself or had it from some foreign criminal. At any rate it was his method.

Once inside the blacksmith shop, over which there is never a watchman, he was able to get the tools he would require to force the door or the window of the post office. It was one of his theories that burglars were always traced by tools, and consequently it was his custom to make the local blacksmith his unconscious accessory. Inside the post office he used the methods of the best cracksmen. He carried a first-class drill and either nitroglycerin or dynamite, his selection of an explosive depending upon the season. He knew all about the mechanism of safes; he had studied it very carefully. He would drill always at the same point, a little above the knob of the combination, make a dam round the hole with green soap, fill it with nitroglycerin and blow the door off. As a rule, when he burglarized the blacksmith shop for tools he would also burglarize a livery stable for horse blankets. With these he covered the safe to deaden the sound. The stamps he took away in an oilcloth

bag that he carried round his body. In one of the post offices that he had robbed two or three times he had to move some of the old shattered safes out of the way in order to get to the new one that had been put in under the impression that it was burglar proof.

Sir Robert Anderson, formerly of the Criminal Investigation Department of Scotland Yard, says that very few criminals are experts; that it is as difficult to find a skilled operator in the underworld as it is anywhere in the usual vocations of life. And he would cite the instance of Major Arthur Griffiths, who was in charge of one of the convict prisons.

On one occasion, when the visiting director was hourly expected, Major Griffiths discovered that he had mislaid the key of the office safe. He told the chief warden to get one of the convicts to open it. But in the whole prison but one man could be found competent to undertake the job, and he was a trained man from the shops of one of the great safe manufacturers.

In the underworld the yegg was an expert. He invented, it is said, the pocket-piece method of carrying saws. It was a clever trick when he first brought it into existence. When the authorities at a local prison, a country jail or station house searched the prisoner they would find an old trade dollar or a worn five-franc piece in his possession. The criminal would ask the authorities to permit him to keep it because it belonged to some member of his family—his mother, his father or some imaginary child that

had cut its teeth on the metal edge in some imaginary former happy home. It was a line of what the underworld calls soft stuff, and the prisoner was usually able to put it over at the country jail. He was allowed to take the coin into the cell with him; what danger could there be in a worn pocket piece treasured for its memories?

There were all kinds of dangers in it. The faces of the coin screwed together on delicate thread, and the interior was filled with tiny saws of the best material. For a long time through this device the clever criminal was able to get about with a fair equipment of saws always in his possession.

It was for no slight accomplishments that this man was known to the subterranean world as the King of the Yeggs. It was Old Bob, we are told, who invented the system of planting saws about in the various prisons that he might again be unfortunate enough to enter. His method was clever and ingenious. Kindly religious people endeavor to reform criminals by sending tracts and literature to the local prison. The yegg inaugurated the habit of pasting these moral dissertations on the wall of the cell. The custom pleased the well-meaning people and it could not be very well objected to by the prison authorities. It was also useful to the yeggmen!

The little sermons were glued to the wall with sirup, usually a staple of the prisoner's diet. A thin saw of the best quality was thereby held in place for the benefit of the yeggman if he should ever by chance

return that way, or for the benefit of any member of the gang who might happen to be picked up by the police. It was a long time before the authorities discovered this trick, and then they found the local prisons of the country to be cached with the handy burglar tool.

But the yeggman did not always depend upon his pocket piece or the pious tract to furnish the saw he needed. One night he and his accomplice found themselves in the cell of a local prison in the Middle West. The accomplice began to complain that he was hungry; he would like to have a slice of roast beef, he said, and a bottle of beer.

"How long can you wait for it?" said the yegg.

The accomplice laughed.

"I would like to have it now," he said; "but I can wait an hour."

"You can get it in forty minutes," said the yegg.

He took off his four-in-hand tie and drew a flexible saw from its interior; then he got two others out of the cuffs of his trousers.

Several years ago some clothier invented a method of stiffening the collar on a hand-me-down suit by putting a narrow strip of whalebone under it. The device suggested something to the yeggman. He bought one of the coats and substituted a flexible narrow saw for the strip of whale bone. No one of the prison authorities in the smaller towns, where he was accustomed to rob post offices, would look under the collar of a coat for a saw. The whalebone device

was well known. It had been followed in the trade by a substitute in the form of a thin metal strip, so if one felt over the yegg's collar he would have passed it as the usual stiffening device. These clever adaptations show the extreme ingenuity of the man.

Once he found himself in a Southern penitentiary where there were no planted saws and where his clothes had been taken away for prison garb. But even under these circumstances the man was able to escape. A bar was cut. For a long time it was not known how the prisoner had accomplished this difficult task. He had in fact cut the bar with a saw that he had made from a wire taken from the rim of the tin porringer in which his food was put into the cell. Nobody had ever noticed up to this time that the tin dish had a wire rim, and as he had carefully removed it from the underside no injury to the dish was visible to the eye.

When the man's criminal career became known the authorities began to be careful about him. The yegg taxed his ingenuity to meet this increased surveillance. A perplexing prison mystery is cleared up by the following unofficial explanation; clever even if apocryphal. He was in a state penitentiary for burglary and he found himself with no method of escape. The prison culinary department was not serving potatoes; he had a little money and he asked the warden if, as a concession to a Thanksgiving dinner, he would permit him to buy some baked potatoes. He said he liked them roasted in the ashes, and

there was a restaurant in the city that would send them in to him. The warden permitted the potatoes to be sent in. But they were the most extraordinary potatoes that ever went into a penal institution. The skins were intact, but the interiors were dynamite. He blew the end out of the prison and walked away.

The yeggman became so notorious for these clever, extraordinary devices that the secret-service men were continually warning the local prison authorities.

On April 25, 1911, he was sentenced at Salisbury, North Carolina, to serve three years in the penitentiary at Atlanta, Georgia, for burglary of post offices at Kernersville, Walnut Cove and Mocksville, North Carolina. He was remanded to a local prison. A secret-service man went to the authorities of the prison and pointed out that Old Bob was an ingenious yegg and that his cell ought to be constantly searched and a guard kept over him. The prison authorities replied that the secret-service man need not be concerned; the cell had been searched, and besides they were conducting a model prison and knew how to take care of a prisoner.

"Sure!" said the secret-service man; "but all the same I will go over to the judge and get an order to search the prisoner."

The local authorities laughed, but when the secret-service man came back with his order they found a short piece of gas pipe in the mattress and several saws suspended by threads behind the radiator.

It may be interesting to note here that this was

another method of the yegg for planting saws. There is usually a ventilator in the prison cell; sometimes it is a considerable distance up from the floor. It has a solid grating bedded in the masonry and is too narrow to afford an avenue of escape; consequently it is not infrequently passed over in inspecting prisons, and no one pays any attention to it for a long period of time. In many prisons it is perhaps not examined from one year's end to another. The yegg concluded that these ventilators could be used for the purpose of storing tools against an evil day. It was his custom, therefore, to suspend saws in the inside of these ventilators by tiny black threads tied to the grating. The threads were practically invisible, and there was little chance that the saws would be discovered until some one of the underworld should need them to regain his freedom.

The man was observing and adaptive. He said that the public was accustomed to believe that burglaries were done in a certain manner and that it was easy to put people off the track by giving them the clues they expected. For example, on one occasion when he wished to conceal the manner in which he entered a building he cut a pane of glass out of a window. He said people generally believed that burglars, when they wanted to get through a window, cut the pane of glass out, but that, in fact, no burglar had ever taken the trouble to cut a pane of glass out of a window since the world began. If he wanted to get a pane of glass out of a window he glued a sheet

of paper over it, or if he was in a hurry he would merely put a square of sticky fly paper over it, and press steadily on the pane until it broke. Fly paper would hold the glass from falling on the floor, so there would be no noise from the shattered glass and the thing could be done in a moment.

It is, of course, impossible to verify the stories related of this accomplished criminal. But that such stories do gather about him is proof in itself of his leadership in the underworld. To the conspicuous individual the current story always attaches.

The conclusions of such a clever criminal with respect to the machinery of the law are worth more than a passing notice.

Most of us regard the devices of our criminal laws from the standpoint of various theories. We think of them as affecting some one else. Our conclusions, therefore, are apt to be academic and sometimes of little value; in fact, every one having a practical knowledge of criminal procedure is so perplexed by the theories of well-meaning but inexperienced persons that he feels like saying, after the manner of Thoreau:

“If I should discover that the wisest man was coming to my house to give me his opinion I would hide away from him; but if I should hear that the humblest man had learned a thing that he would tell me I would cross the world to see him.”

When men are looking at an institution directly as something that vitally affects their liberty or their

life their determinations upon it are apt to be sound and practical. After long reflection the yegg seemed to come to the conclusion that all the manifold tricks and devices, circumlocutions, evasions and obliquities of criminal defenses were perfectly useless so far as any benefit to the professional criminal were concerned. "They string out the trial," he is reported to have said, "and then the judge soaks you for it."

It is worth while to think about this conclusion. Is not the result he indicates precisely the thing that usually happens? Take a professional criminal well known to the authorities. His record is on file. After he has been apprehended and identified, of what advantage to him is the theatrical spectacle of a long legal trial? What does he gain by having the indictment quashed for a clerical error in it, when the next Federal grand jury will return another? The yegg apparently figured out that the only thing he would get out of a legal procedure of this character would be the extra time in prison. He would stick in the jail until the next grand jury was convened, and after that his sentence would begin to run.

Nor did there seem to be any advantage to him in the legal safeguards that are supposed to be thrown round one charged with a crime, upon the ancient maxim that it is better for ninety-nine guilty men to escape than for one innocent man to be punished. This theory cluttered the English common law with interminable legal brush—all the technical objections to the introduction of testimony and the various nice

formalities that must be precisely adhered to in a criminal trial.

The yegg seems to have come to the conclusion that all of this complicated procedure was of no benefit to the professional criminal.

Such a trial in the case of a well-known professional crook was simply a sort of sporting event in which the lawyers scored for points; the judge umpired the game; and afterward the whole thing was taken up to a supreme court to say whether or not it had been played according to the rules. But the result was that the prison sentence was only delayed, with an additional evil feature to the crook, that it made him notorious and worked up sentiment against him. The judge was only irritated, and when he finally got a chance to sentence the prisoner he made him pay for it.

Courts were imminent, deadly perils to the yeggman; he was thinking about them as men think about something that they are called upon to face, and his conclusions are the conclusions of one whose welfare depended upon taking the best course. After long reflection he acted on the opinion that when a professional crook was taken into custody he should require the state or the Government, as was his right, to disclose at the preliminary hearing before a commissioner or magistrate the case that it had against him. Then if it appeared that the state had "the goods on him" he went at once before the court and confessed. By this means he got a short sentence,

because the judge felt that the state or Government was not put to the trouble and expense of a long trial and the prisoner was, therefore, entitled to have that element considered.

Students of our law will observe how more and more professional criminals are coming to take this course. The white slavers that the Government recently ran down in a famous case immediately confessed. Professional train robbers in a late case followed the same course. One sees it coming into common usage and one realizes in it the influence of such leading criminal authorities as the King of the Yeggs.

One cannot consider the career of this deliberate criminal without wondering about the success of our theories of punishment for crime. Here was a man who had spent half a lifetime in penal institutions. The cumulative sentences entered against him are said to have equaled nearly fifty years. The records of the post-office department show that he served a term of eleven and three quarters years in the Huntsville, Texas, penitentiary, for blowing a safe in Bastrop County, Texas; that he was discharged on July 4, 1903; that he was sentenced April 25, 1911, at Salisbury, North Carolina, to serve three years in the United States penitentiary at Atlanta, Georgia, for burglary of the post offices at Kernersville, Walnut Cove and Mocksville, North Carolina; that he was sentenced April 10, 1913, at Huntington, West Virginia, to serve three years in the Federal

penitentiary at Leavenworth, Kansas, for burglary of the post office at Ravenswood, West Virginia, during July, 1910; that he was paroled June 3, 1914; that he was arrested November 22, 1914, at Crossville, Tennessee, for burglary of the post office at that place, November 21, 1914, at which time the safe was blown; that on April 23, 1915, he escaped from the Cookeville, Tennessee, jail; that he was arrested October 7, 1916, at Hinton, West Virginia, taken back to Tennessee and sentenced April 9, 1917, at Nashville, Tennessee; that indictments were returned against him for the robbery of the post offices at Leonardo, New Jersey, and London, Kentucky.

It must be remembered that this is the record of the post-office department only; the long career preceding this amazing record, which began in boyhood, is not here assembled. But the record of the post-office department is enough to make us doubt the efficiency of our penal methods.

What ought we to do with a confirmed criminal of this character? Obviously, short sentences of imprisonment in the Federal penitentiaries are wholly inadequate; and we are driven to consider where we get our ideas of imprisonment for crime, and upon what theory it is, precisely, that we have established imprisonment in criminal cases.

The earliest idea of punishment for wrongdoing was the idea of restitution. If one pilfered a hundred pieces of gold, he was required to return a hundred pieces of gold and if he killed the son of another

he thereby forfeited the life of his own son. After that came the idea of revenge, the instinct in Nature to injure the one that injured us. The community or state became a sort of individual. It undertook to revenge itself on the criminal for injury done by him to any one of its units.

After that, the theory upon which the prisoner was punished for an attack on society became indeterminate. Some authorities maintained that the whole idea should be to protect the community from the criminal; the criminal himself not to be considered. This idea led to the early English prisons. The criminal was to be surrounded by a wall that would protect society against him; that is to say, being dangerous to the community, like any other predatory beast, he must be confined in a cage.

This being the moving idea, no attention was paid to the individual prisoners. They were crowded together in these places of detention, with the resultant squalor and horror that John Howard has made vivid for us.

But, in 1704, Pope Clement had an idea that changed the whole scheme of punishment for crime. It occurred to him that while society was protecting itself against the criminal the criminal might be made to reflect upon his evil life and reform; could not a prison be conducted after the manner of a monastery—an institution of cells and discipline? It was the experience of the church that solitude and meditation were powerful moral agents.

It was Pope Clement, then, who introduced the cell system upon which the American penitentiaries have all been based. The idea of solitary confinement as in the English-speaking penitentiaries went further than Pope Clement. These prisons were presently divided into two systems—the solitary and the silent. Under the solitary system the monastic idea was carried to its extreme; the prisoner was kept wholly alone; he rarely if ever saw anybody; he had no communication with the outside world. Under the silent system the prisoners were sometimes permitted to be together; often they worked in a large room together or in the open, but they were not permitted to speak. There was no communication, or if so it was of the briefest character and only at limited intervals.

But it was discovered that under these systems the mind of the criminal broke down and that no human being could endure the monotony without some form of employment. The authorities then set about to find some employment.

Sir William Cubitt invented the treadwheel.

It was a sort of mill wheel with twenty-four steps. The prisoner held to a wooden bar above his head and turned the wheel by treading on the steps. It was a perfectly vicious form of labor, having no object except to require physical movement of the prisoner; but, because there were a number of prisoners together at it, it was not so devilish a device as the crank that Mr. Gibbs invented at Pentonville. This was a

metal box with a crank, and the prisoner was required to register so many revolutions of the crank each day. There was a dial on this device, and the prisoner was not fed until the dial showed a certain number of revolutions. It would be difficult for the human intelligence to devise a more deadly form of labor.

It presently appeared that some other form of labor must be added to the monastic idea, and gradually our present system of prisons evolved. But they are all founded on the basic idea of Pope Clement—the notion of monastic discipline as a reformatory moral agent.

The basic difficulty with them is one that escaped Pope Clement when he started this notion on the way. The men whom he had observed to be benefited by a monastic life were persons moved by a religious idea whereas the criminal class is precisely the reverse of this.

It is difficult to see, then, how any modifications of this notion could be a success so far as the reformation of prisoners is concerned.

The monastic idea of our Federal penitentiaries is correct in that it shuts the prisoner up where he cannot injure society, but it is wholly a failure in the idea that it causes him to reflect upon his evil life. As Archbishop Ullathorne has pointed out: "Even the anchorite had the open desert and his work for the poor of the cities, but the criminal is thrown upon his own denuded and sterile nature such as vice and profligacy have left him."

The example of professional criminals like a yegg moves us to reflect upon what we are going to do with our criminal element. Reformers abound who undertake to run a prison, based on the monastic idea, with the principles of a republic, but we are not quite convinced, and the problem seems to remain.

The courts have undertaken the probation system with prisoners, the parole system and the indeterminate sentence. But these cure-alls seem to be useful only in certain classes of cases. It would seem that our whole idea of the treatment of criminals would have to be recast.

The great labor of the future will be to differentiate those who attack orderly society; to discover the insane, the feeble-minded, the diseased, and those who act from impulse as distinguished from those who act from deliberation. The insane will go for treatment to the proper institutions; the feeble-minded must be taken care of; those who are morally influenced by disease must have the benefit of a hospital rather than a penal institution.

Society must then consider how many of the others can possibly be restored to the community as useful citizens, and what course it is proper to pursue in order to accomplish this result. It is suggested that we prepare for these cases some large open-air places of detention, abandon the custom of fixed sentences, and have them taken charge of by the state until a cure is effected. Now it must be realized that while this idea of taking care of prisoners of this class until

a cure is effected is sound, the methods suggested are all theoretical. It involves a problem not yet precisely solved. But there seems to be reason to believe that all persons who have acted against society from impulse may be so treated that they can afterward be returned to it as useful members.

But the confirmed criminal, what the prison authorities call "the old rounder," the man who is physically sound but determined on a predatory life—what shall we do with him? Writers on penal methods and practical authorities like Sir Robert Anderson, formerly of Scotland Yard, are exceedingly skeptical about him. There is hope for all other criminal groups. Science has rescued the others from the dominion of the devil, only the old rounder remains to him. And what is the state to do with this inveterate enemy? Shall the husbandman suffer forever a fig tree that produces only thorns?

Saint Paul said that he had learned some things from the unwise. Our revolutionary neighbor used to have a remedy: There was a special prison in Mexico to which professional criminals were finally sent. It was so arranged that the facilities for escape were everywhere visible to the inmates, but there was always an invisible guard to shoot any who attempted to regain his freedom. It is reported with grim humor that the device never failed.

CHAPTER X

BANK LOOTING

ONE does not always go to the bad from evil associations. Sometimes one goes to the bench.

A certain Chief Justice of England was a member of a rather wild crowd in his youth. One day in the court room he heard that Rufus Shore, one of his early associates, now a notorious bank robber, was in jail; and he went to see him.

"Shore," he said, "what has become of the others of the old gang?"

"Alas," replied the prisoner, "they are all hanged except myself and Your Honor!"

This instance led the Chief Justice to remark that the vocation of a bank robber was rather more perilous than that of a barrister.

Old Robert Scott, who got a million two hundred and fifty thousand dollars by cracking a bank in Massachusetts, used to say that the business was safe enough if you could do it from the inside. He had some experience. He lifted two hundred thousand dollars out of the Falls City National Bank, in Louisville. And a couple of years later he made a like haul

at Quincy, Illinois. So he was competent to testify, as the lawyers say.

One hears constantly of the methods by which the man on the outside loots a bank. The details are all set out in the morning paper. But the methods used by the man on the inside are not usually given in such detail. The depositor is educated to be comfortable about his money.

On the outside the police guard the bank, and on the inside the bank examiner guards it. The policeman is vigilant and not to be outwitted; so is the bank examiner. In the public mind the bank examiner is a sort of Sherlock Holmes with an adding machine. In the language of Watson, one stands aghast at his perspicacity. Nevertheless, in spite of this perspicacity, Scott knew what he talked about.

Every now and then a man on the inside cleverly outwits the Government's figure sleuth.

An enterprising bank cashier, in about the fourth largest city in America, concluded that he was not advancing toward a fortune as fast as he wished. So he worked out a plan for supplying himself with a personal fund and put it into execution at the bank's risk. Now one would say that the bank examiner should have discovered what was missing. But nothing was ever missing! When the bank examiner came round every security was in its proper place in the bank. Nor was any of the cash missing. When the Government expert sleuthed his way through this financial institution he never could find anything

wrong with it. The cash was always correct, the books always balanced and the securities were in place. Nevertheless, the cashier had dropped five thousand dollars covering margins on a falling security. The thing was a nice little financial mystery, but its secret may now be revealed.

The cashier had made out a dummy note, selected five thousand dollars of good securities, attached them to this note, and borrowed the money from a neighboring bank. When the bank examiner came to town the cashier merely wrote out a cashier's check for the five thousand dollars, took it across to the neighboring bank and got that bank to hold the check and return the securities. There was no record in his bank of the cashier's check, and, as the securities went back to their proper places during the examination, the bank examiner never had the slightest suspicion of this clever ruse.

In another celebrated case two ingenious young gentlemen, officers in a great banking institution, were in charge of the reserve fund. This consisted of packages of money laid up in a vault under the banking room. These two gentlemen were trusted officials. But Fortune was looking at them with her "golden eyes under her gilded eyelids" and they thought they could trap her.

These two enterprising young gentlemen determined to plow their own field with the bank's idle horse. So they borrowed some packs of money out of the reserve and started a local broker into the Stock

Exchange to show that conservative institution some examples of vivid finance.

The speculations were not successful. The dollar sent out, unlike the devil in the Scripture, did not return bringing seven others with it. But the young persons were hopeful, determined and persistent. They continued to borrow from the fund. The thing went on until the reserve began to show visibility. Still no one suspected. The bank examiner came, counted the reserve, certified it as all right, and went his way. Meantime the two young gentlemen, efficient, painstaking and always present at their duties, won the esteem of the president of the institution.

One afternoon, as the Yuletide period of good will approached, the admiring president called the two youths into his private office, expressed his admiration for their sterling qualities, notified them of an increase in their salaries, and extended his hand, with the congratulations of the board of directors. Whereupon, not to be outdone in generous appreciation, they led the president down into the vault, which the reserve used to inhabit and explained how sorry they were that the bank's horse, which they had endeavored to ride, had been captured by the enemy!

How did it happen that the bank examiner certified this reserve as all right when he occasionally dropped in to see that everything was shipshape? It came about in the simplest manner. Every banking institution of any size is constantly making investments of money. These young ge

the precaution to secure a pad of receipt forms from a neighboring express company. When the bank examiner appeared they always had ready for him a filled-out receipt of the express company showing that they had just shipped the amount which they were short to some banking institution in another part of the country.

Some one said to Old Ponsford, the English cracksman:

"But there are no cracksmen on the inside of a bank."

"Sure!" said Ponsford. "And do you know the reason?"

The interrogator replied that he did not. And Ponsford illustrated his remark by a story he had heard in an English club where his son was a butler:

An Officer in India wished to swim in a neighboring river, but he was not able to do it on account of the crocodiles. He explained his wish and the difficulty to his native servant. The servant considered the matter for a good while. Finally one day he led his master to the mouth of the river where it emptied into the sea and told him he could bathe at this point without any fear of the crocodiles. The officer removed his clothes and plunged in. He enjoyed his swim and was greatly pleased when he returned to the beach.

"Now, my man," he said to the native, "why are there no crocodiles here?"

"Sahib," replied the servant, "there are no croco-

diles here because they are afraid of the sharks!"

"My word!" Ponsford used to say. "What show would a little cracksman have with the big Johnnies on the inside?"

He probably had the notorious forger Fauntleroy in mind, who obtained the transfer of stocks entered in the Bank of England to the amount of a million pounds.

On the morning of the eighth of May, 1901, a National Bank examiner entered a great Southern city. About two-thirty o'clock in the afternoon the paying teller of the X National Bank called in his messenger and told him to see whether he could get forty thousand dollars from the Y National Bank in currency for bills of large denomination. The Y National Bank replied that it could not meet this request. The paying teller then sent his messenger to the Z National Bank, stating that he desired to exchange a sealed package of silver certificates amounting to forty thousand dollars. The messenger saw the paying teller of the Z National Bank. He said he could make the exchange in clearing-house certificates. Upon this being reported to the paying teller, he gave the messenger a sealed package purporting to contain forty thousand dollars. It was a Government package and labeled:

"Four thousand ten-dollar bills—\$40,000."

The messenger took this package to the Z National Bank and obtained for it eight clearing-house certificates in the denomination of five thousand dollars

each, making a total of forty thousand dollars.

This happened between two-thirty and three o'clock P.M., before the banks closed on the eighth day of May, 1901. Twenty minutes later the bank examiner entered the X National Bank. He found the department of the paying teller in perfect order. The cash on hand corresponded with the general book of the bank. In this amount of cash on hand was included fifty-five thousand dollars of what are called clearing-house certificates, which are treated and accepted as cash. The examination was thorough and in all respects satisfactory to the examiner.

This examiner was an exact, painstaking official. He had made semiannual examinations of the X National Bank and of this paying teller's department from the time of his appointment in 1898, having made in all five examinations prior to this one on the eighth of May, 1901. And on each occasion he had found the cash in the hands of the paying teller to correspond with the general book of the bank, and the condition of the paying teller's department to be in all respects satisfactory.

Now story-writers tell us that the essential difference between fiction and life is that fiction must adhere to probabilities!

About four o'clock in the afternoon of this eighth day of May a citizen of this city, and a large depositor in the X National Bank, received a letter from the paying teller in which he said that he had speculated with the bank's money to the extent of thirty-six thou-

sand dollars, and requested a loan in order to make good the deficit.

The letter was written and signed by the paying teller.

It contained a casual postscript, which said that the teller had noticed the depositor in the bank that day and thought the man might be willing to help him out. The depositor did precisely what any one else would have done: He sent the memorandum to the cashier of the X National Bank. At nine o'clock the next morning, when the president of the bank entered, the cashier showed him the memorandum he had received from the depositor the night before. After reading it the president walked round to the paying teller and told him to turn his cash over to the receiving teller and take a vacation. The president went back to his desk. A few minutes afterward the paying teller walked out of the bank.

But before this occurred, the paying teller had sent back the eight certificates to the Z National Bank in accordance with the promise he had made to it the evening before, and received, in return, the package of silver certificates. This package came into the hands of the receiving teller, whom the president had directed to take charge of the cash. He had no use for such a bundle in his cage, so he took it back to the safe and turned it over to the cashier.

To say that the president of the bank was astonished is to state the case with moderation.

The paying teller was a trusted official. He had

been long in the employ of the bank. It was incredible that he could have embezzled thirty-six thousand dollars. The bank had been carefully examined right along by the Government official. There was no trace of any such loss. The president of the bank did not believe it. Things ran along until about noon. Finally he got into a car and went out to the paying teller's house. He rang the bell and went in. The paying teller himself opened the door.

"Sam," said the president, "sit down and tell me the whole truth now."

They sat down and the paying teller explained that he had taken out thirty-six thousand dollars of the bank's money from time to time. The president asked him whether he had the money. He took two dollars out of his pocket and said that was all the money he had in the world. The president asked him what he had done with it. He said he had sent it to a stockbroker in New York. And he proceeded to explain how he had gradually lost the money speculating on the Stock Exchange.

But how did he cover the shortage from the bank examiner?

The trick was a skillful piece of criminal business. This paying teller managed to have in the bank, about the time when the bank examiner was expected to arrive, a sealed package of silver certificates to the amount of four thousand dollars in an original package as received from the United States Treasury. He would have also in his possession a label of a similar

forty-thousand-dollar package, which he could always easily obtain. He had then only to remove the four-thousand-dollar label from the sealed Government package and replace it with the forty-thousand-dollar label. He would then send out the messenger to some of the other banks asking them whether they could let him have bills of a less denomination for this sealed forty-thousand-dollar package of silver certificates from the United States Treasury.

Any associate bank having small bills would readily make the exchange. The bank messenger would leave the original package and bring, in exchange, smaller bills amounting to this sum of forty thousand dollars. With this cash on hand the bank examiner would, of course, find everything all right. When the bank examiner left, the paying teller would return the cash to the bank with which the messenger had left the sealed package of silver certificates, and obtain again the original package intact.

The plan was simple and practical.

No bank would question a sealed package of United States currency delivered to it by a reputable bank; and, not requiring bills of large denomination, the package would be put into the safe for the time being. On the following day the teller of the X National Bank would be able to recover it by returning the other money. The plan worked perfectly for a long time. It might have gone on indefinitely but for the sudden, incredible note of the paying teller.

Maupassant said that one's greatest peril lies in a

state of mind. The cockney crook in Stevenson's story, *The Ebb Tide*, thought that no soft amateur had any business setting out on a career of crime:

"It ain't sife, an' it ain't gentlemanly; an' it tikes a man to do it."

It is not always the bank examiner who is outwitted. Sometimes the authority above him overrules his judgment. An expert examiner was at work one day in one of the largest institutions in this country. Vague things, of which he was able to get at only the odds and ends, convinced him that there was something radically wrong with the banking house. He was in the bank for two days, but he seemed to be working in a circle. Finally a little clerk, going out at the noon hour whispered to him:

"Take a look at Mr. Blank's book in the little safe over yonder."

The safe was marked "Private." It was a little iron box affair, in the corner by the indicated official's desk. As it happened, the door was open. The bank examiner immediately searched the safe for the private book. Finally he found it behind some life-insurance policies and other individual papers of the bank officer's. He took the book over to a table and sat down to go through it. In it he found a record which explained all the mysterious, doubtful business that he had suspected. He was deep in the records of the book when the bank officer entered, after the lunch hour. He flew into a rage at sight of the bank examiner.

"You have no business with that book!" he cried. "It doesn't belong to the bank. It's my private record."

The bank examiner was not disturbed.

"I have got it," he said; "and when I am through with it I shall seal it for the proper authorities."

That night the bank examiner reported to his superior.

"This bank has been looted," he said. "The securities have been switched. Its assets are two million dollars under the estimate in its reports."

But the superior was not to be convinced. He said that the people in charge of the bank were the ablest financiers in the country; that the shifting of securities was merely the result of some financial adjustments, and that the bank was sound. The bank examiner insisted, but his superior was not to be moved. And, very shortly after, the bank went to pieces in a great financial crash, with its attendant roll of suicides, ruined stockholders and damaged associate institutions.

And sometimes the examiner comes a cropper in a legal ditch.

Once upon a time—not so very distant a time—some enterprising persons in a little city organized a trust company. The law required a trust company to pay in its full capital stock before it undertook to do business. Nevertheless, in spite of this requirement, the trust company opened its doors. The bank examiner went in. He called the attention of the

cashier and the officials to the fact that only fifty per cent of their capital stock had been paid in, and that the remainder must be paid before the trust company could go on with its business. The cashier said that the trust company had opened its doors; that it would be a distinct damage to it to close; that if the bank authorities would permit the company to go on he would see that the capital of the bank was paid in before the end of the week. The bank examiner conferred with his superiors and they finally agreed to permit the trust company to keep open. But they warned it that the examiner would return on the following Monday morning, and if the capital stock was not paid up he would close its doors.

An hour before the trust company opened on the following Monday, the bank examiner was on hand. The records showed that the capital stock had been paid up. But the bank examiner was a thorough person and he went through the securities. Among these he found five notes of ten thousand dollars each. He took these notes in to the cashier.

"Who made these notes?" said the bank examiner.

"I made them," replied the cashier.

And then, very frankly, the cashier explained that they were all dummy notes, which he had made for the purpose of paying up the residue of the capital stock of the trust company.

"If there is anything wrong about it," he said, "I will tear them up." And he proceeded to put the suggestion into effect.

The bank examiner was amazed. He seized the torn fragments of the notes and put them into an envelope. He sealed everything in the bank, closed it, and turned the evidence over to the legal authorities.

And after that he discovered a peculiarity of the law over which he still continues to wonder.

The cashier was acquitted of the charge of forgery on the legal ground that the notes he had made did not represent anything of value; that nobody had been injured by the false making of these worthless securities!

The ingenuity of the cracksman on the outside has been usually able to meet the appliances for defense; but the man on the inside has always been able to go him one better. The old cracksman used to putty up the edges of the vault door, leave a hole at the top and bottom, put a paper funnel full of pulverized powder at the top hole, an air pump at the bottom hole, suck the powder in behind the door and blow it off. He now drills the door and uses nitroglycerin. The banks keep the vault door under a light, where it can be seen through the windows by the patrolman outside. And the cracksman paints a canvas picture of the vault door, sets it up before the light for the patrolman to see, and operates behind it.

So the cracksman fools the patrolman; and so, with an even greater ingenuity, the crook on the inside puts it over on the bank examiner.

A cashier in what is commonly known as a one-man

bank—that is to say, the small-town bank where all the business is practically conducted by the cashier—worked out a very pretty system. There was oil development in the neighborhood about him. He concluded that he could make a good deal of money by buying leases, but he needed considerable capital. So he worked out his plan. The plan was successful. He very easily raised twenty thousand dollars without attracting the notice of anybody.

The bank examiner never found a dollar short in his accounts or a certificate missing from his securities.

The cashier's accounts, money and securities had always been absolutely correct. He gave himself no concern about them. The examiner could come when he liked, remain as long as he pleased, and do anything he wished. He had no property to speak of, and no money. His salary was barely sufficient to support his family. He had no credit, no resources, and yet he very easily raised twenty thousand dollars.

The problem looks difficult.

But the man's plan, like all such devices, is simple enough when one finds it out. He had two books of certificates of deposit. One he kept at the bank—the regular one indicated on the bank's records—and the other he kept at home. He raised the money he needed by dummy notes secured by false certificates of deposit made out on his own bank and taken from the duplicate book.

Nevertheless, the inside business is as dangerous as the outside. A number of disappointed gentlemen

in what is known as the bankers' row in a certain Federal prison will verify this statement on any day of the year.

Only one man, so far as the records seem to go, has ever been able to get away with the trick. And perhaps he was not guilty at all. Nobody is certain about it. We are certain that he could have done it, but we are not certain that he did. If he did do the thing he was the shrewdest crook that ever took a flyer in criminal devices, and he contented himself with a single job, as the cracksmen call it. This man was an officer in a bank in which there were a number of sleeping deposits—that is to say, a number of wealthy depositors who kept large sums in the bank, greatly in excess of their checking account, and whose regular habits were to balance their bank books once or twice a year.

A certain depositor of this class came into the bank and explained that there was a mistake in his account.

His book, balanced by the bank, showed that on a certain day the bank had cashed a check for twenty-five thousand dollars. He said that he had never given any such check, and that no such check was among the canceled checks delivered to him by the bank. Everybody in the bank was astonished. The officials at once took up the matter. The books of the bank showed that twenty-five thousand dollars had been paid by it in regular order and the check placed with the other canceled checks of this depositor. Every record of the bank showed the check had gone

through in regular course. And every official in the bank who had anything to do with the matter swore that the check had been among the other checks. It was a large bank. The officials did not remember the individual check. But they did not undertake to remember any individual checks. They were required to be certain of only two things: that such a check had gone through the bank; and that every check shown by their records had existed and been delivered to the depositor.

The thing was a profound mystery.

Nobody could solve it. One could believe what he liked, but he could prove nothing. The bank officials maintained that the depositor had mislaid the check when he was going through the package of canceled checks after he had received them from the bank. They stood by their records. The check had gone through and been delivered to the depositor.

The depositor maintained that somebody in the bank had forged a check on his account, passed it along in regular course, like any other check, and after his book was balanced, and the checks assembled for delivery, had removed the check from the package just before handing it out to him. But nobody ever knew.

It was a trick that could have been worked either way. The depositor might have mislaid the check; or some one in the bank might have forged it, as he said. If it was the work of a crook in the bank he was a crook of judgment and restraint. He took

his one turn over the wall and remained content with it.

Old Scott, when he cracked the bank in Massachusetts, had to get a little inside help. The bank directors had undertaken to add an additional security to the vault devices in use at that time. They put in an inside door with a lock that could be opened only by a number of keys. These keys were distributed among the bank officers, so that nobody could get this door open unless he could first assemble all these keys. The bank robber would be compelled to round up every bank officer in the bank and get his key in the lock before the vault could be entered.

Scott kept pretty well advised about banks. This device of the Massachusetts bank gave him a good bit of trouble. Finally he went down to the plant of the company that made the bank vault and got hold of one of their employees. This employee went to the Massachusetts bank to make some pretended repairs. He asked for the keys to the extra vault door, took wax impressions of them, and made some duplicates for Scott. Later on, when Scott got ready to crack the bank, all he had to do was to take possession of the cashier's house, put everybody in it under guard, burn the cashier's feet with a hot poker until he gave the correct combinations, and go ahead with his job.

Scott finally got his reward. But he thought the peril of his career lay in the fact that the secret of his operations had to go too many ways. It took a lot of people to carry out a criminal adventure as Scott

planned it. And with so many there was sure to be a leak.

The cockney, in *The Ebb Tide*, had the criminal career accurately sized up:

“It ain’t sife!”

A conclusion in which certain venerable authorities of the *Pentateuch* concur.

CHAPTER XI

SCIENCE AND THE FORGER

EVERY advance in human knowledge increases the jeopardy of the criminal. Professions which the enemies of society used to follow with a fair degree of security have now become so dangerous that only the foolhardy and the ignorant undertake them.

Conspicuous among these professions is that of the forger. When men depended upon the eye and the testimony of the village banker, the forger was protected by a large margin of safety; but any one who undertakes to forge, change or alter a writing to-day sets his foot in a way that fairly bristles with danger.

The microscope has admitted the human eye into a new world—a pen track on paper stands out as clearly and distinctly as a foot track in the snow. The comparison is apt. The little sheet of paper becomes a great, white, smooth field on which the marks of the pen are broad trails, in which every peculiarity of the person who made them is conspicuous to the eye. Moreover, the record which the criminal leaves here is much more complete and prominent than the track

he would leave on a field of snow. What criminal would tramp over a snow field on his way to a crime? A peril which the assassin and the burglar would not hazard in a slight degree the forger must incur in the highest degree. The footprints which the former are so careful to avoid contain few elements of identity and are presently effaced; but the forger leaves a permanent record of his identity upon every document he touches with a pen. If he undertakes to produce a forged paper of any considerable length in its entirety, with the signature of another, he embarks upon a labor that in its difficulties is enough to stagger the most skillful expert. Every man who writes with a pen has many peculiarities. These do not appear ordinarily to the eye; but when the writing is put under a microscope, and the broad tracks of the pen lying on the great white field of the paper are carefully studied these peculiarities are as easily distinguished as the peculiarities of the human face.

When one undertakes to make this kind of a forgery he must either resort to a common imitation, which is the method of the bungler, or he must superimpose his forgery upon a tracing from some original writing. The usual method is to make a tracing in pencil and fill it in with ink. This plan was perhaps safe enough before the microscope was discovered; but to-day it is as dangerous as the other.

A German authority has pointed out that when one works on a genuine writing his mind is upon the composition and not on the strokes of the pen; but when

he undertakes a forgery the process is reversed. The result is that instead of freely moving trails on the paper, the microscope reveals halting, jerking tremors, heavier in one place than in another, showing the care and pains with which the forger was endeavoring to make his letters.

Continuing the illustration, we find that under a magnifying glass a sheet of writing paper is a white, perfect surface. No mark, impression, erasure or abrasion on it can be concealed. If the writing is superimposed on a tracing the tracks of the pencil will show, no matter how carefully the forger undertakes to remove them. To the naked eye the paper may be clean of these marks; but under a glass they will appear as great indentations smeared with graphite, and the broken and abraded surface of the paper will stand out as though one had dragged a plow across a field.

Moreover, in order to insure any degree of success, the skillful forger of such a paper must measure the letters and signature which he endeavors to reproduce, and attempt to transfer them precisely to his paper; but to succeed in this is to destroy himself. The fact is that no man ever writes his signature twice in precisely the same manner.

In the Howland will case, tried in New Bedford, Massachusetts, where forgery was alleged, three signatures were shown to be identically the same by measurement. Professor Pierce testified that the chance of the downward strokes of the signature be-

ing identical in this case were so slight that one would have to write the signature quintillions of times before it was likely to occur as a mere coincidence. The very fact, then, that the letters of a signature are exactly the same and that the signatures are mathematically in all points identical in structure is apt to be the most convincing evidence that they are forged.

In the Patrick case, the fact that four signatures of W. M. Rice, photographed and superimposed one upon the other, showed that they were identical was perhaps one of the convicting elements against the prisoner.

In addition to these dangers, the forger is in peril on account of the paper he uses. In innumerable cases the paper upon which the instrument was written has proclaimed it to be a forgery. Ancient writings on modern paper are false *prima facie*. The watermark in the paper often shows it to be a forgery.

An authority of Munich relates an incident of a document bearing the date of 1868 on paper with a watermark representing the eagle of the German Empire; but this eagle was not employed until after 1870!

Moreover, issues of paper are not always put on the market in the year they are watermarked; and there may be peculiarities or defects in the machinery by which certain issues are produced and by which they may be traced.

In attempting to forge old documents one is apt to get into trouble with the dates at which certain

sorts of inks, pencils and the like have come into use.

In the Gordon will case, Henry G. Adams produced a document which he testified was the original draft of G. P. Gordon's will. This had interlineations in red ink which Adams testified were made at the time; but this red ink was shown by chemists to contain a substance called eosine, a thing that was not discovered until years after the date at which the paper was said to have been written.

When one undertakes to alter or change a written instrument he meets with difficulties which ordinary human ingenuity is not apt to surmount. In order to make any change or alteration in a writing, one must remove some part of the original writing. There are only two ways to do this—namely, by mechanical or chemical erasure.

Now the surface of a sheet of paper has a smooth dressing. If one scrapes that with a knife or the like, to remove a word or letter, he breaks this smooth surface; and under the microscope the paper will show the injury as clearly to the eye as though the varnish on a table had been scraped off with a steel tool. If he removes the writing with a chemical the paper will be discolored. It will show under a glass as though a fragile, delicately tinted wall had been mopped. So, at the very first step, the evidence of the crime is made conspicuous.

When the forger puts his pen to the paper after these abrasions another thing happens: The smooth surface of the paper having been destroyed and the

fiber exposed, the ink runs into the fiber and spreads. If the writing is made over the paper from which ink has been removed by chemicals the ink spreads out exactly as it does upon a piece of blotting paper.

The common practice of raising checks by changing words or figures presents itself to one's attention in considering the alterations in written documents. In this class of forgeries there is another matter to bear in mind—namely, that under the microscope the marks of the pen on the paper may be as clearly seen as though the letters were made of lath and laid on a floor. And usually, where the stroke of a letter or figure crosses another letter or figure, one can tell which is above and which below, as one could tell which lath was above or below another. For instance, a three-hundred-dollar check—\$300—has been raised to five hundred—\$500—by erasing the top of the three and adding a backward stroke that touches the cipher next the three. Not only will an examination show the abrasion upon the paper where the top of the three was removed but it will show also the backward stroke lying on the cipher as though it were a piece of lath laid on the top of the original piece forming the cipher.

Again, when figures or letters are made, the ink enters the paper and becomes fixed; then if, later on, changes are made in these letters or figures a difference between the new strokes of the pen and the old ones already fixed in the paper will be perfectly evident when the writing is photographed and enlarged.

The illustrations which authorities on this subject give in their textbooks by enlarged photographs show clearly how easy it is to detect changes of this character. Where persons have added to receipts, and the like, words indicating that they were in full settlement of account, and these added words touched the signature below the receipt, it was easy to show that these words had been added after the original writing had been signed, because the strokes of the added writing were on top of the signatures, where the lines touched.

There are innumerable little things about forgeries that indicate the truth. The mere fact of whether or not a paper has been folded before the questioned writing was put on it is sometimes enough. For instance, one might have a signature of another on a sheet of paper which he had folded and laid away; if afterward he opened it and wrote a note above the signature, across the fold, a proper examination would disclose whether or not the writing had been made after the paper had been folded.

Men who have studied this subject point out that the fold necessarily makes a crease in the paper; and if one undertakes to write over a fold the pen skips the crease or makes a wide track on a ridge, and the ink spreads where the surface has been broken by the folding. The thing is as clear under a glass as the track of a plow over a field where it crosses a little ditch or any other inequality in the surface of the ground—except that, unlike the point of the

plow, the point of the pen leaves a staining fluid.

Illustrations are given of a case where one removed a sheet from an autograph album and wrote a note for a large sum of money above the signature, the folds in the paper showing conclusively that the signature had been written before the sheet was folded and the writing above it afterward—a mathematical demonstration of the fact that the instrument was a forgery.

This feature of the subject is of special importance in examining codicils added to wills, additions to contracts, and the like, where these additions are said to have been made at the time of the original writing.

There is another danger attending the alteration of any written paper: If the alteration is made in precisely the same ink as that of the original writing still the forger is not safe, because those acquainted with the chemical composition of inks are able to tell how long the ink has been on the paper, and the difference in appearance of the words will indicate the change.

If the change is made with an ink of a different chemical composition, then the chemist by applying his reagents will be able conclusively to show that the inks are not the same, and that therefore the writings were not made at the same sitting.

There are a number of different sorts of inks that appear alike to the eye, but that are conspicuously different when chemically tested. Thus it may happen that the man who has a writing in black ink and

purchases a black ink with which to change it thereby sets upon the paper the conclusive, irrefutable evidence of the fact that he has committed a crime. It is hardly ever possible for a forger to be certain that he has the ink with which the original writing was made, and he takes the desperate chance of preparing the evidence for his own conviction when he alters a written instrument. One has seen the figures or letters in a changed writing, when chemically tested, stand out in two or three brilliant colors, showing how they had been touched with different inks by one who ignorantly believed his crime was concealed.

The anonymous letter has given the postal authorities a great deal of trouble. It is a crime to write an anonymous letter, for which one may be punished in the courts of the United States. Those who have studied the mental characteristics of the writers of such letters point out that the thing is often a sort of mania, and that such letters, when scattered about a community, can usually be traced to a common source. Not infrequently the writer of such a letter is one who claims to have received them. It is a foolish and dangerous practice.

It is exceedingly difficult to disguise one's handwriting; even if that were accomplished the writer's habits of punctuation, of paragraphing, of leaving margins and all the other mechanical aspects of his composition will usually remain. He will hardly be able effectually to disguise his standard of education and culture.

If one takes the letters in an anonymous writing and the letters in a writing by the person suspected, and assembles all the letters of the alphabet contained in these two documents in columns parallel with each other, he will be able to see very quickly the points of resemblance or difference. This method was effectively followed in the case of *Everett v. Wilkinson*, in New Jersey, where there were a number of anonymous letters in question. It is fairly easy to tell whether the writer is a man or woman, both by the writing and the composition.

Nor does it avail to write such letters with a typewriter. Every make of typewriter has its own peculiar form of letters; and these letters, as the machine is used, acquire certain peculiarities and defects in their type and alignment which give them an individuality almost as well established as that of handwriting. In a number of cases such writings have been traced to the machine on which they were written.

The fact is, a careful, intelligent examination of a questioned writing will hardly fail to show whether it is forged or authentic. Such papers are often charged with the greatest importance, the lives and liberties of persons and enormous estates frequently depending upon the authenticity of writings. Such a paper, then, ought to be carefully examined microscopically and submitted to a minute, orderly and analytical scrutiny. It ought not to be left to

the opinions of a banker's clerk. The opinion of some good examiner of questioned documents should be taken.

It must be remembered, however, that only in recent years has this subject been given the same careful and scientific study that men have given to other departments of human knowledge. Carefully prepared works are now to be had on this subject. The study of disputed writings has been made upon a scientific basis; so that papers which appear to be without suspicion, upon a proper and careful examination are shown to bristle with evidences of forgery.

Take, for instance, the Davis will case, tried in Montana, in which an estate of ten millions was involved. Casually this will appeared to contain nothing peculiar; but, after it was submitted to a careful, intelligent examination, it was shown that the signature of one witness was written in a different ink; that the paper had been treated with a staining fluid, had been ironed and then written over; that the fold on the date did not coincide with the other folds in the paper; that it had been rubbed with a wet woolen rag—portions of shoddy from the rag were found; that pinholes had been systematically punched in it; that scallops on the edges had been pinched in the paper; that the signature was a tracing because of its want of shading emphasis, the sameness manifested in the pen pressure, the frequent pauses made by the writer when inking over the lead-pencil lines of the

tracing and the presence of these lines were not covered with ink.

In attempting to manufacture old documents like this one, the forger continually incurs difficulties he is not apt to appreciate. For instance, the handwriting of men changes. Age, education, vocation and the development or retrogression of the individual are all indicated in his handwriting. Therefore the writing of an individual at a certain period may essentially differ from his writing at another period, and his physical and mental conditions affect his handwriting. To produce a writing of a certain date one must know not only the appearance of the writing of the person at that date but his very mental and physical conditions at the hour that he was supposed to seat himself at the writing table. And, in addition, the pens, the ink, the papers, and so on, available to this person must be known.

Again, the styles of writing taught or commonly used among the people have essentially changed at different periods. The methods of making capital letters, and especially the forms of figures used in writing, have changed; so that the forger who undertakes to produce a document of a certain date is required to have knowledge of the history of all the changes in the styles, forms, structures of letters, figures, papers and methods of composition that are available only to the profoundest students.

Men who are to-day making a scientific study of disputed writings and endeavoring to formu-

late reliable, analytical methods of investigation, and to assemble all the knowledge of modern science to their aid, are engaged in a labor of much benefit to the people. Vast losses are sustained in this country on account of forgeries and great temptation is held out to weak persons. Those who point out the innumerable dangers of such undertakings and who help to make the detection of forgery an exact scientific possibility are entitled to commendation. Every time the outposts of human knowledge are advanced the territory of criminal enterprises is contracted.

CHAPTER XII

BLOODSTAINS

IT was only when man began to understand that the universe is a great complex machine moving according to certain fixed laws, and that the human family dwell within it at their peril, that science was born.

Men were accustomed to obtain their knowledge by inspiration, by the juggling of syllogisms, and by the mouths of oracles who were supposed to transmit all that a cosmic ruler wished to communicate to his subjects. But the advices of the cosmic ruler were usually so difficult to interpret that the ones who received them were often in a worse position than they were before they applied for these divine directions. When Cræsus contemplated the conquest of Persia he sent to the oracle at Delphi to inquire what the result would be. The oracle replied that "if Cræsus should make war on the Persians he would destroy a mighty empire." Cræsus took this to mean that he would destroy the empire of Cyrus and he went forward with his war. But Cræsus was himself defeated and ruined, and when he sent to ask why the oracle had misled him, this authority pointed out that he

had in fact destroyed a mighty empire, that was to say, his own.

It was then, as Huxley has said, when men began to understand that Nature is the expression of a definite order with which nothing interferes and that the chief business of mankind is to learn that order and govern themselves accordingly, that they set about undertaking to find out something definite and accurate about the physical forces among which they were endeavoring to exist. It was then that, for the purpose of discovering the will of the authority dominating the universe, the microscope took the place of the tripod. Men realized that only through the eye, the ear, the sense of touch, and so forth, could they determine any fact, and their first labor was by mechanical devices to assist these senses—to see with lenses what the eye could not and to measure with chemicals what the fingers could not. It is the intention here to indicate how tremendously the advance in science has increased the jeopardy to the criminal agent.

It used to be a common defense with persons charged with homicide to explain that the stains found upon them were other than bloodstains. It was practically impossible for the ordinary person to determine whether or not a stain found upon the person accused was dye, paint or rust, and for years the criminal escaped upon this doubt.

Also in many cases where the stain could be shown to be a bloodstain the accused explained that he had

bled a horse, or that he had carried fresh meat, or that he had clipped the dog's ears, or had killed a chicken, or the like; and as no one could be certain that this was not true he escaped upon that doubt.

But these cases belong to the dark ages of criminal procedure. To-day the modern biological chemist not only can say whether these stains are bloodstains, but he can determine exactly the origin of them; and to-morrow, as Biffi has suggested, he will likely be able to identify the stain with the very individual from whom it was obtained.

As late as 1834 the textbooks contain no special mention of bloodstains, although Orfila and Jacopi had studied the subject earlier in that century. But Haspail denied that anybody could tell the difference between bloodstains and many other substances, since with the white of an egg and madder dye he could produce a stain that nobody could detect; and it was perhaps not until fifty years later that the science of chemistry had advanced to the point where the courts could rely upon tests for bloodstains.

Then it was that science removed from the criminal agent the possibility of escaping punishment upon the explanation that the stains found upon him were not in fact some sort of bloodstains. This much chemistry had accomplished; then came the spectroscope and confirmed and made certain what the chemist had already discovered. In a great number of cases where the stain on account of being mixed with some other substance was difficult chemically to

to ascertain, the spectroscope made it certain.

A case cited by Ferrand illustrates how the chemist has been able to clear up certain mysteries of the law. The body of a man was found lying in a courtyard; his skull was fractured and he was dead. The inmates of the house testified that he had fallen from the second story window. But on the landing of the second story the man's cap was picked up, and on the inner side of this cap there was a small stain. Here was the mystery: If this were a bloodstain then the man had been killed and thrown out of the window; if it were not, then the inmates of the house were telling the truth. Before the chemist came into the court nobody could have cleared up that enigma. The stain was examined, shown chemically to be a bloodstain, and the conclusion was arrived at that the man had been struck on the head and afterward thrown out of the window.

How the spectroscope has assisted the chemical tests is pointed out in the cases assembled by Ipsen. In a homicide case a bundle of clothes was fished out of the River Inn. There were some stains found upon them, but owing to the presence of molds it was impossible to dry the stains so as to get a proper chemical test. By means of the spectroscope, Ipsen showed that these were bloodstains.

In another case, where a workman had been killed and the chemical tests were not conclusive, Ipsen by the spectroscope was able to determine that the stains in question were bloodstains, and the guilty man

afterward confessed to the crime. And in the case of *Reg. v. Coe* the spectroscope was able to determine the presence of blood, although the expert had less than one one-thousandth of a grain to examine.

There yet remained all those cases in which the accused accounted for the stains by the story that, although they were of blood origin, nevertheless they were not of human origin.

The mass of criminal cases in which this defense was interposed is almost incredible. Although science had been able to determine that a certain stain was or was not a bloodstain, until the microscopic tests were made it had not been able to say what the origin of the stain was. It was compelled to content itself with the mere determination of the fact of its being a bloodstain.

It was therefore easy for the criminal in his defense to admit what could be determined, and yet to escape by some explanation accounting for those stains.

Soon scientific men began to study the structure of the blood under the microscope. They discovered that with the exception of the camel and the llama all mammals have circular and usually non-nucleated red cells, while on the other hand birds, reptiles and fishes have elliptical nucleated red cells, and they set about to measure the size and structure of these cells in order to determine their origin. This investigation went forward and it was presently certain that one could tell whether the blood was that of a mammal or

that of a bird, reptile or fish. This fact led to the ruin of innumerable criminals who made the mistake of explaining that the stains found upon them were bird or fish stains.

Draper cites a case that occurred at Goron. The prisoner explained that the stains on his clothing were due to fowls' blood, but when they were examined they were found to contain no elliptical nucleated red cells, showing conclusively that his story was false.

The difficulty of the criminal to explain these stains was now greatly increased. He must say that they were from the blood of some mammal in order to create any doubt.

Richardson privately said that it was impossible to distinguish the blood of a man from that of a monkey or dog. Virchow was doubtful. Mason said, in 1885:

"Our experience has shown that in the case of human blood its differentiation from the blood of a pig, ox or cat is easy, from the blood of a dog difficult, from the blood of a rabbit uncertain and from the blood of a guinea pig impossible." And Ewell said, in 1893: "It is impossible in the present state of science to say of a given specimen of blood, fresh or dry, more than that it is the blood of a mammal."

Thus then it was possible for the criminal, by saying that it was the blood of a dog or of some other mammal, to create a doubt under which he might escape.

It was true that in 1875 Malinin went farther than any one else—went too far, the scientists say.

Two nobles were charged with homicide. The point in question was whether a board found in a stable belonging to one of them bore bloodstains of human origin. The nobles said it was sheep and goat's blood. Marlinin after an examination declared that it not only was not human blood, but that it was in fact sheep and goat's blood, and he stated that if he had not definitely thus identified it the nobles would have been hanged.

Though it was true that as scientific knowledge stood no man could say definitely that a bloodstain was not that of a certain class of mammals, nevertheless the investigators were able to indicate with a certain degree of confidence the sort of mammal. Where soap had been used to wash out stains they could find traces of the soap, and where criminals had intended that the bloodstains were from certain insects, as bugs, mosquitoes, and the like, as where only a few droplets of blood were found on the accused person's clothing, the scientists were usually able to find bug bristles if the accused were speaking the truth.

Science had thus forced the criminal agent back step by step to this last fastness. There remained now only one position in which he could make a stand against the truth, and from this position Uhlenhuth, Wassermann and Schütze have finally driven him out into the open. By treating a bloodstain with what is called an antiserum the modern biological chemist is now able to say exactly the origin of it. So definite, so accurate, so certain are these tests that the truths

or falsity of a prisoner's story can now be at once settled. There remains no longer the benefit of any doubt. If he asserts that a stain is of a certain origin his story can now be tested and it will at once appear whether or not he is telling the truth.

The accuracy of these tests is incredible to the lay mind. Age seems not to affect the stains. Stains thirty years old have been determined; blood that had lain in garden mold for years has been determined; stains on linen exposed to the weather seven months have been determined; stains on paper ten years old and stains that had been partly washed out have been accurately determined. Mummy material has been tested. Hansemann obtained a reaction with mummy material four thousand years old, Meyer with mummy material five thousand years old; and it is said that Friendenthal by this method has shown that the mammoth and the Indian elephant are of the same family.

The cases in which this test has been brought to the aid of the courts in the administration of justice are strikingly clear and decisive. Those reported by Uhlenhuth are sufficient to appall the criminal agent.

In one case a sheet of music was found on which were stains, and Uhlenhuth was able to name exactly the animal from which the blood had come.

A man was tried at Treves for murder. On his shirt, trousers and stockings were found stains that he testified were caused by his being in a cow house where one of the cows had wrenched off her horn. This story was supported by the evidence of an-

other witness, but Uhlenhuth by this test was able to show, first that the stains were not bovine and second that they were of human blood.

In another case a man was accused of having shot and robbed a wagoner. He alleged that the stains on his clothing were due to the drippings from some meat that he had bought, but Uhlenhuth showed that they were human bloodstains.

As by a sort of magic the scientist is now able to solve the mystery of these criminal defenses. Often where there were stains of various origins mingled, the biologists by this test have been able to identify each so that the criminal cannot escape by resorting to a confusion of sources.

DeWillebois, Jr., reports an extraordinary case. A man had stabbed another at a fair. On being arrested he stated that he had acted in self-defense and that his opponent had been stabbed in the struggle with his own knife, which he had drawn. The accused man admitted that he owned a dagger, but this could not be found. He stated that he had thrown away his assailant's knife, but this was found in a chest in the dead man's house, and on it were found stains which the widow stated were due to her husband having used it to clean fish. The experts tested these stains with solutions of stains made from the blood of the four kinds of fish that the woman had named, and they demonstrated that her story was not true. They then tested the stains for human blood and found that they were in fact human blood.

The novelist who now resorts to *Studies in Scarlet* must construct a more complicated germinal idea than the one taken by Thomas Bailey Aldrich in *The Stillwater Tragedy*. It was true that Mr. Aldrich, following the sound advice of Aristotle, used the facts in the Hungerford murders as a pivotal incident in his romance. But it would not to-day serve Mr. Aldrich's adroit villain to paint over the bloodstains with red lead as the criminal did in the Hungerford murders. The antiserum tests would discover the real stain under the paint, and Mr. Aldrich would never have got his villain to the dramatic point where by accident it was shown that the barrel he had painted, and from which he declared that he had received the paint marks on his clothing, was in fact painted blue. In reality, the scientist has now got the criminal into a corner from which he cannot escape by any subterfuge if he bears upon him the least vestige of these telltale stains.

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While one is giving due honor to the pains-taking scientist for the aid he has rendered to the law courts, it is only fair to point out that certain devices of pseudo-scientific origin suggested for use in the trial of criminals are fanciful and useless; as, for instance, the plan of putting to the prisoner a series of questions based upon the association of ideas. The theory is that the prisoner, if guilty, will strive to reply with some word not associated with the real facts in the crime, or that he will take a longer time to construct

an answer that will not incriminate him if he be guilty. The following extract from the works of a professor of psychology will illustrate:

“He (the prisoner) has perhaps slain a woman in her room, and yet protests that he had never been in her house. By the side of her body was a cage with a canary bird. I therefore mix into my list of words also ‘bird.’ His mind is full of the gruesome memory of his heinous deed. The word ‘bird,’ therefore, at once awakens the association ‘canary bird’ in his consciousness; yet he is immediately aware that this would be suspicious, and he succeeds, before the dangerous word comes to his lips, in substituting the harmless word ‘sparrow.’ Yet my next word, or perhaps my second or third next, is ‘color,’ and his prompt association is ‘yellow’; the canary bird is still in his mind and shows its betraying influence.”

Now it is perfectly evident that such a test is not only useless but dangerous, because an innocent man being put to such a test and knowing its object would make the same effort to avoid incriminating answers that a guilty man would make under like circumstances.

Like this test are certain devices suggested by similar authorities for indicating guilt. The theory is that the emotion of the prisoner may be shown by a mechanical device, and such devices called the autograph, the sphygmograph and the plethysmograph have been urged. But again, even if such devices were mechanically effective, they would be

dangerous and useless, because, as every one knows who has anything to do with criminal trials, the innocent manifest as much emotion when they are charged with crimes as do those who are guilty.

It is clear that such suggestions are of impractical academic origin and never could have occurred to anybody who was concerned in the practical administration of justice. The machinery for the trial of criminal causes must be strong, practical and capable of enduring rough usage, like the parts of an army weapon; and like such a weapon to a certain extent it must be fool-proof. The disposition of a citizen's life or liberty cannot be made to turn upon the results of psychological tricks or mechanical devices that he does not understand. The whole system of justice is based upon the simple idea that the citizen charged with a crime shall have the charge definitely made by the state, shall be entitled to hear the evidence offered against him and to present his own evidence, and shall take the opinion of a jury upon that as to whether or not he is guilty. The experience of the English-speaking people from time immemorial and in innumerable cases has demonstrated that this is the safest form of procedure, and it ought not to be rendered ineffective by the introduction of fanciful academic devices.

We have seen how all the vagaries of chance are against the criminal agent. And now we see how science is against him. Wherefore is it that all sources of human knowledge move as under a com-

mon impulse for his ruin, as though there existed a fated necessity to establish justice? Tyndall said:

“Having reached the very rim of physics, a mighty mystery looms before us.”

And he was surely right. It cannot matter how we theorize upon that mystery. One may believe that man is a spirit with an immortal destiny, or he may believe that he is a bacillus germinated in the cultures of decaying planets, or he may believe that man is a speck of some cosmic consciousness entangled for an instant in a grain of matter, like a portion of air encased in a film of water—bubbles below a fall—or he may decline the question, or he may believe what Tweedledum told Alice, that we are only things in the Red King’s dream. No matter what he believes, when he has examined the whole record upon these criminal cases he will find it difficult to dissent from the conclusion of Matthew Arnold, that there is abroad in the universe “a power not ourselves which makes for righteousness.”

CHAPTER XIII

SECRET CIPHERS

IT used to be the boast of the German Secret Service that, given a reasonable time, it could decipher any secret code, no matter in what characters or in what language it was written.

Let us not too easily regard this as a mere vain-glorious pretension. Edgar Allan Poe said the ingenuity of man could not invent a secret writing that the ingenuity of man would not be able to decipher. He declared, in a newspaper published in Philadelphia, that he would undertake to solve any cipher sent to him. A hundred cryptographs were sent in, made up in foreign languages, with words and sentences run together, and of all sorts of alphabets. Poe deciphered every one of these secret codes, it is said, with the exception of one, which was, in fact, a mere jumble of characters. It is not unreasonable to suppose that the German Secret Service carried this art to as high a degree of efficiency.

We know with what care, patience and ingenuity the Teutonic mind sets about the solution of any problem; and when we reflect on its achievements we are moved to admit the claim of the Berlin Secret

Service. A single example of this untiring German genius for the solving of riddles is enough to appall the diplomatic corps of any country compelled to send its dispatches in cipher.

When the archæologists discovered in Persia the site of the ancient capital of Persepolis, they found inscriptions in cuneiform or wedge writing. These inscriptions were in three parallel columns. They might, therefore, be in three languages or merely a repetition of the inscription in three forms.

Here was the most difficult form of secret cipher imaginable. Nobody in the world knew a single character in these inscriptions; nor had anybody the slightest idea of the language they represented. The ancient tongue for which these characters stood had disappeared from human knowledge.

The characters alone remained—mystic and apparently undecipherable symbols of a vanished language.

Moreover, several languages might be indicated. The characters might be hieroglyphics, forms of picture writing, or ideographic signs. The individual characters might stand for letters of an alphabet, words, or detached ideas. They might be symbols for events, or they might be syllabic, partially syllabic—or almost anything.

It is impossible to conceive of any secret cipher set in a more dense Cimmerian darkness. Nevertheless, Georg Friedrich Grotefend, a Prussian, undertook to decipher the inscriptions.

He began by setting them in three separate columns. He assumed they were in three languages. He noticed that the inscriptions all began with similar signs. Some of the groups of signs appeared to be about the same length in each inscription.

Taking it for granted that a group having the same length and appearing equally in all the writings was a proper name, he observed that, following this, another group appeared, which seemed to be repeated in the inscriptions. He assumed that a certain word meant "king." Sometimes he found it lengthened, and he concluded that meant "kings." This second word was generally followed in the inscriptions by a third word that seemed constant. Grotefend imagined this word was "great."

He concluded, as these inscriptions would be set up by great monarchs, that they would begin with the king's name. He had now to discover the name.

A study of Herodotus and others led him to believe that the kings most likely to set up such inscriptions would be Cyrus, Artaxerxes or Darius. The classical authors declared that certain monuments had been set up by Darius. This king's name in the Persian language seemed to be about the right length for the group in the inscription. Grotefend concluded that it was intended for Darius; and he now had for his reading: "Darius—King—great."

He was, therefore, able to get certain constant factors, by which all cuneiform inscriptions have been completely deciphered since that time. And, having

before him a like inscription in three languages, he had a key by which all three languages were afterward brought into human knowledge.

The story equals anything in mystery fiction. The slant of the wedge, which indicated divisions of words; the hint suggesting that the inscription ought to be read from the left; the observation that noticed the recurrence of certain groups of symbols, and the ingenuity that worked out the meaning of these indicatory signs—all these things relegate to the commonplace the deductions of Lecoq and Dupin.

Now the controlling Teutonic idea was the welfare of the empire. This welfare necessitated a knowledge of the intentions of its enemies. The moving intention of the enemies of the German Empire was communicated by cipher dispatches to their embassies and to their armed forces on land and sea. It was vital that the Berlin War Office should be able to understand the secret ciphers of other governments.

It follows, then, that if Germany gave such minute and patient attention to the deciphering of mere archæological inscriptions of purely academic value she would labor harder to decipher the secret codes of her enemies when the thing at stake would be the preservation of the empire.

Every country preserves copies of all cipher dispatches sent to foreign embassies, and resorts to every device to obtain the signal books and codes of its neighbors.

With its elaborate system of espionage, its secret

means for acquiring codes and ciphers used by other nations, and the incomparable German ingenuity for patiently working out a problem, it may be confidently asserted that the Berlin War Office had a copy of every known code; and that, given time, it would decipher every secret code the ingenuity of any nation could devise.

A great deal of skill has been used in order to construct a secret code that will baffle solution. The most common form is the word-book system; and special military dictionaries have been constructed. These dictionaries are in form like certain marine signal books. Words and expressions, syllables, and the like, are indicated by one cipher; but there was always the danger that such a dictionary might fall into the hands of the enemy.

It was necessary that every officer likely to receive dispatches should have constantly with him a copy of the word book. This meant that vast numbers of the word book must be issued; and thus the chance of its coming into possession of the enemy was greatly enhanced.

Another difficulty was that if, by inadvertence, an officer in the field was not in possession of the word book he could not read a message sent to him. During the Franco-Prussian War a German general found himself in precisely this dilemma. He was in the field with his corps, while the word book, by some oversight, was with his baggage in the rear. It was a disaster that impressed the German authorities,

and it is not likely so cumbrous a form of code translation is now employed.

Some form of secret cipher has been in use from all time. The Greeks, when their home authorities wished to send orders to a general in the field, were accustomed to wrap a narrow strip of parchment round a rod so that the edges met, and across these edges they wrote a message. The strip was then unwound and sent to the officer, who carried with him a rod of precisely the same dimensions. He was able to read the strip by winding the parchment round the rod he possessed. This brought the letters on the edges of the parchment into their correct position.

Edgar Allan Poe treated this clumsy method of the Greeks with ridicule and contempt. He said that anybody could have deciphered those messages by the simple device of preparing a long cone, broad at the base and tapering to a point. It was only necessary to wind the strip of parchment round the base of the cone, and then, keeping the edges together and the parchment close against the surface of the cone, gradually slip the writing down until, at the point where the diameter of the cone equaled the diameter of the rod on which it was written, certain of the letters would come together. An enemy with the slightest ingenuity could then have deciphered the war codes of Sparta by this simple device.

Cæsar's code, familiar to every schoolboy, was merely a method of putting certain letters in place of certain other letters—*e* standing for *b*, and the like.

Such a code could not have given anybody difficulty in its solution, and would have served only in an age of little general learning.

One finds at this day a military authority suggesting a secret code based on a mechanical device. A metal plate having certain squares cut out is prepared. The message is constructed by first putting down the plate on a sheet of paper and writing the message words in the squares. Then the plate is removed and other words written in, so as to form a sort of coherent note. To decipher this, one must have a like plate, which he puts down over the writing, and merely reads the words that appear in the squares.

Such a method, however, would require that these cumbrous plates must be carried about—a thing infinitely dangerous to a spy. The mere possession of such a device would cause him to be shot at once. If this were the only difficulty of such a method, it could be obviated by laying out a plate of exact dimensions, and the squares in it of exact dimensions, and then committing those dimensions to memory. No plate would then be required. The one receiving a message would have only to lay off his plate with a ruler, mark it out on the message with a pencil, and read what appeared in the squares.

But when we come to inquire into this device we find that it is not new. Poe knew it and riddled it. He said:

“The chief objection to this cryptograph is the difficulty of so filling the blanks as not to give a forced

appearance to the sentences. Differences, also, in the handwriting between the words written in the spaces and those inscribed on the removal of the card will always be detected by a close observer."

The common cipher in use is that of some sort of word book, of which the A-B-C code is a sample. Variations of this, highly complicated, are the commonest in use.

A cipher largely employed, and which is said to be practically undecipherable, is constructed in the following manner: The total number of words required in the message to be sent is determined. For example, let us say that the communication can all be put into five hundred determined words. These words and the number of them having been agreed on, a like number of words is selected at random from a dictionary.

The determined words are each written on a slip of paper and put into a box. The words at random are also each written on a slip of paper and put into a second box. The contents of the two boxes are thoroughly mixed up. Then a slip of paper is drawn at random from each. The words on these two slips of paper stand for each other in the code. This drawing is continued until the whole code is thus formed. It may happen in this system that "rainbow" means "general," and "aneurism" means "gunboat."

As this code has no special method, it would seem that it cannot be deciphered unless a number of such messages are assembled and certain constants in them

arrived at. But we do not know what Poe would say about such a code—or the German War Office. Perhaps to such ingenuity the solution would be as simple as the *scytale* of the Spartan ephors.

There seems to have been an advance in the method of constructing secret codes. The old system was too suggestive of mystery. The mere fact that the message seemed to be a complicated jumble was notice to all the world that it was, in fact, a cipher. It was an advance to evolve a cipher that appeared to be a harmless personal message in plain language.

Such messages are said to have been sent over the world by the German authorities at the opening of the war. These messages seemed to convey to the individual simple information of some domestic affair—the illness of a relative, or the like—and attracted no particular attention.

A communication sent to a minor secret agent in England, and decoded at his trial as a German spy, gives some indication of this simple method:

“We are pleased to learn of your successful negotiation of the business at hand. Be pleased to send us an empty sample. As regards the other matter in hand, I do not know how useful it will be to us. In any case my firm is not willing to pay you more than a hundred in this case.”

The most charming open cipher ever devised was by Bob Englehart, in O. Henry’s story.

President Miraflores, of the imaginary Republic of Anchuria, was suspected of an intention to flee

from the country with the public revenues and the opera singer, Isabel Guilbert. Englehart, conspiring with the revolutionists, was watching events in the capital city. In order to advise his American associate, Goodwin, at the coast when the thing happened, he was suddenly confronted with the difficulty of sending a telegram that would not make his information known to the native authorities. He had agreed on no cipher with his friend Goodwin.

The problem was to send his message in such form that the American at the coast would understand it; but, at the same time, it must be unintelligible to the native authorities or any foreign consul. The thing looked impossible; but the resourceful Englehart worked out the following brilliant solution:

"His Nibs skedaddled yesterday per jack-rabbit line with all the coin in the kitty and the bundle of muslin he's spoony about. The boodle is six figures short. Our crowd in good shape; but we need the spondulics. You collar it. The main guy and the dry goods are headed for the briny. You know what to do."

In vain did the authorities labor with their lexicons to translate this message into intelligible Spanish.

Like this are codes based on facts known only to the person sending them and the one to whom they are directed.

It is said that Lord Methuen, when he wished to send a dispatch to Cecil Rhodes during the South African War, resorted to such a method. He had

no cipher prearranged with Rhodes; so he took as a base for his message the name of his gardener in England, which he happened to know Rhodes would remember.

We are told that an English general in the field, when Mafeking was besieged, sent to the commander of that fortress the following clever message:

“Number of guns, age of last year’s Derby winner; number of Cape carts, same as our club in Piccadilly.”

These are ingenious devices that might be resorted to in an emergency by persons who had no prearranged code or when the key to their code was not available. This system of the open cipher, which seemed harmless and of no importance in itself, was very largely used by the Confederate States at the opening of the Civil War.

Southern sympathizers in the North were accustomed to give information by publishing personals and news items in certain newspapers. These newspapers were immediately sent over the border into Virginia. By this means information known to Confederate agents in Washington and Baltimore was swiftly and safely transmitted to the Confederate generals. It required very little ingenuity to construct these news items so that they served quite as well as the old cipher message.

Besides, with the message printed in a newspaper it was entirely safe to undertake to carry it through the lines. A civilian found with a newspaper in his pocket could hardly be shot as a spy; a copy of a

paper in general circulation might be in anybody's possession. Even though it contained a code message, it would be difficult to show that the person having the paper in his possession had any knowledge of the code.

General Greely tells us that when the Secret Service was finally organized at the opening of the Civil War important messages were sent by means of the disk cipher.

Two concentric disks, of unequal size and revolving on a central pivot, were divided along their outer edges into thirty equal compartments. The inner and smaller disk contained, in its compartments, letters, terminations and word pauses; while the outer and larger disk contained the groups of signal numbers to be sent. Sometimes this arrangement was changed—letters being on the outer disk and numbers on the inner.

With the introduction of the military telegraph an ingenious kind of cipher came into use. This cipher was improved and is said to have been untranslatable by the Confederate authorities. A sample of it is the message President Lincoln sent to ex-Secretary Cameron when he was in the field with the Federal armies south of Gettysburg:

“Blonde bless of who no optic to get an impression
1 madison-square Brown cammer Toby ax the have
turnip me Harry hitch rustle silk adrian counsel
locust you another only of children serenade flea Knox
county for wood that awl ties get hound who was war

him suicide on for was pleasure village large bat
 Bunyan give sign incubus heavy Norris or trammelled
 cat knit striven without if Madrid quail upright
 martyr Stewart man much bear since ass skeleton tell
 the oppressing Tyler monkey."

In this message the first word indicated the number of columns and lines in which the message was to be arranged, and the directions for reading it. Long before, Sir Francis Bacon had urged the advisability of putting dummy words into ciphers, or what he called "nulls." And such words are inserted in this message; but they are in such form that anybody would be able to determine them who had a key to the cipher. The solution of the cipher appears in the following table, as given by General Greely:

Washington	July	15th	18	60	3	for
Sigh	man	Cammer	on	period	I	would
give	much	to be	relieved	of the	impression	that
Meade	comma	Couch	comma	Smith	and	all
comma	since	the	battle	of	get	ties
burg	comma	have	striven	only	to	get
the enemy	over	the river	without	another	fight	period
please	tell	me	if	you	know	who
was	the	one	corps	commander	who	was
for	fighting	comma	in the	council	of	war
on	Sunday	night	signature	A. Lincoln	Bless	him

It does not strike one that this cipher would be particularly difficult to solve. If the Confederate armies had had in their service somebody skilled in the translation of ciphers, the gain to them can hardly be estimated.

It will be remembered that Lee's confidential telegraph operator, Gaston, when the Federal armies were investing Richmond and Petersburg, took with

him two or three men and went into the Wilderness. He crossed the Union lines near City Point, establishing himself in the woods; and for three weeks he remained there, taking off all messages that went over Grant's wire.

He could not read the cipher dispatches, but occasionally an open message went through. One of these told of a shipment of cattle to a certain point on a certain day, and this intercepted message enabled Wade Hampton to make a raid and capture some twenty-five hundred beeves.

But suppose this daring dispatcher had carried with him a copy of Poe's *Gold Bug*! The story must have been known in the South and such a possibility is not out of reason. The *Gold Bug* is a textbook on the solution of ciphers. The method laid down in it would have worked out such messages as the one sent by Lincoln and those going over the wire from Grant. One can hardly imagine a more complicated cipher than Poe dealt with in that story.

Any cipher in which words stand for other words, and characters stand for letters in the alphabet, can be deciphered by Poe's method. He observed that, all letters in the alphabet, "e" is most commonly used; and, of all words, "the" is the most common. One would then look in the cipher for the recurrence of the small word and presently be able to determine the characters for the word "the," or some other small connective.

In this manner an entrance could be made; and,

once a wedge is inserted into the casing of secrecy round a cipher, the whole thing is presently split off. Or one with such a message could have applied the system of Grotefend when he undertook to decipher the cuneiform inscriptions. Any form of cipher is open to some one of these methods of solution.

Now and then, in the war between the states, cipher messages were solved by the opposed forces. It was the custom before the telegraph was in general use to signal from high points or towers by a flag or torch. A form of cipher was used—as, for instance, the flag or torch held upright and then moved down to the left, meant one; a similar move to the right meant two; and a like motion in front, three. From this, words, sentences and entire messages were worked out in figures.

It is said that Lee, advancing into Maryland, would have taken the North completely by surprise but for the signal corps on Sugar Loaf, the highest point in the state. From that point the advance was observed and signaled to Washington.

The Confederates had a signal station at Three Top Mountain, which kept Early in touch with Lee. By some means the Federal authorities obtained a key to the signal code. When the Confederates began to signal with a torch the Federal authorities were able to read it. It was Longstreets' famous message to Early:

“Be ready to move as soon as my forces join you and we will crush Sheridan!”

If the cipher in which this dispatch was sent had been more complex, one does not know how greatly the history of this campaign might have been changed.

An extraordinary thing is the fact that the use of the telegraph by the Federal armies was resisted and discouraged by the authorities at Washington. And when it was finally inaugurated it was made, to a degree, independent of the military authorities.

The censor, Sanford, cut several lines out of one of McClellan's dispatches, and another censor withheld from President Lincoln the message that told of the disaster at Ball's Bluff.

They also suppressed important orders from the field, until the thing finally became unbearable and Grant demanded that the service be put under military control. It had been the custom to refuse generals, in the field a copy of the code in which their dispatches were sent. Grant had received a dispatch he was not able to translate.

This was as bad as the experience of the French armies. A general in command of a division at Chalons-sur-Marne could not translate an important message sent to him because the key to the cipher was, by some inadvertence, locked up in Chateau, Thierry.

This experience led foreign authorities to adopt a method of cipher at all times available.

A form of secret cipher in its more complicated stage was written in what we call sympathetic inks—

that is to say, inks made from a number of chemical formulas, by virtue of which the writing would presently disappear. Nothing could be more suspicious than a blank sheet of paper; consequently over this message some harmless communications in pencil would be superimposed. Heat or the application of chemicals would bring out the hidden message.

Here is a story that drifted down through the camp-fire tales of the Civil War:

One night, when the Army of the Potomac was on the eve of a great battle, a suttler who sometimes went through the lines was engaged in a game of cards with some privates, when, by chance, a gust of wind whisked a card from his hand into the fire.

It was rescued; but the heat of the fire had brought out the letter *d* on the back of the card, written there in some sympathetic ink. The suttler barely escaped trouble on the charge of cheating with marked cards!

The men who played on that momentous night with the tramp suttler had never heard of Graham's Magazine. Poe said in it:

"A pack of cards is sometimes made the vehicle of a cipher in this manner: The parties determine, in the first place, on certain arrangements of the pack. For example, it is agreed that when a writing is to be commenced a natural sequence of the spots shall be made, with spades at the top, hearts next, diamonds next, and clubs last.

"This order being obtained, the writer proceeds

to inscribe on the top card the first letter of his epistle; on the next the second; on the next the third—and so on until the pack is exhausted, when, of course, he will have written fifty-two letters. He now shuffles the pack according to a preconcerted plan. For example, he takes three cards from the bottom and places them at the top; then one from the top, placing it at the bottom—and so on for a given number of times.

“This done, he again inscribes fifty-two characters as before, proceeding thus until his epistle is written. The pack being received by the correspondent, he has only to place the cards in the order agreed on for commencement, to read, letter by letter, the first fifty-two characters as intended. He has then only to shuffle, in the manner prearranged for the second perusal, to decipher the series of the next fifty-two letters—and so on to the end.”

Another ingenious device, used by the Germans in their system of espionage, is the cipher map, or what is sometimes called the spy landscape code.

This consists in making what appears to be a little harmless amateur sketch of some unimportant landscape. There would be trees, hedges, bushes, telegraph poles and lines, fences, little streams, and the like. The sketch would be made by a German secret agent, but it would appear to be simply such a sketch as a gentleman walking in the country might make, for his own pleasure, of some little view that pleased him. It would under no circumstances show anything

relating to a military affair; but, in fact, this harmless sketch would be a complicated cipher.

It would be made in accordance with a prearranged pictorial code, and would be, in fact, a sketch of an important fortification or of some military base.

The very simplicity of the methods used by the German Secret Service threw the whole British Empire into anxiety at the opening of the war.

CHAPTER XIV

CODES AND SIGNS OF THE UNDERWORLD

ONE summer morning a man of middle age, with the stooped shoulders of a scholar and wearing thick myopic glasses, was strolling along a street of Monte Carlo, in that beautiful portion of the city above the Casino. On one side of him were the gardens, famed everywhere for their wonderful color scheme; and on the other were the great hotels, unequaled in Europe for their extravagant luxury.

As the stranger descended along the narrow paved street toward the Casino he noticed some curious signs written in chalk on the end of a stone step before one of the great hotels. These signs consisted of the figure six with an oblique stroke after it, followed by the figure two, a small, accurately drawn square, a cross and a curious round-bottomed V (Fig. 1). The stranger called a neighboring gendarme and directed his attention to the signs.

"Do you know what these chalk marks mean?" he said.

The gendarme shrugged his shoulders.

"Why should I bother to know?" he replied. "It's the work of some idle urchin."

The scholarly stranger regarded him for a moment through his thick myopic glasses. "And so," he said, "it is with this degree of intelligence that you undertake to guard a city that is the Mecca of all criminal adventurers.

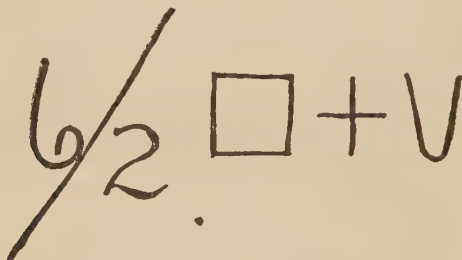


FIG. 1. THE MONTE CARLO MYSTERY, OR
WHAT HAPPENED IN ROOM 66

"My friend," he continued, "this inscription is in the cabalistic signs of the most notorious criminal organization operating in the south of Europe. I shall translate it for you. The figure 6 followed by the long oblique stroke and the figure two are to be read as two sixes; that is to say, the number sixty-six, and are meant to indicate Room Number Sixty-six in this hotel. This means that some criminal adventure has taken place in Room Number Sixty-six. Let us see if we are told the nature of this adventure."

He paused and indicated with the tip of his walking stick the little square drawn in chalk.

"That sign," he said, "stands for bank notes. It means that bank notes have been stolen from Room

Number Sixty-six. This square is followed by a cross. That sign tells us that the stealing of the bank notes was not an easy affair; that it was, in fact, accomplished with difficulty. And the curious round-bottomed V is the sign standing for the member of the band who has accomplished this robbery."

The gendarme was impressed with the air of authority in the man. He summoned his superiors and they went at once to Room Number Sixty-six, occupied by two American tourists.

These tourists were surprised when they were asked if any of their effects had been stolen; but like prudent persons they began to go through their luggage. The result was they finally discovered that a package of bank notes had been removed from a bag locked in one of their trunks. The theft had been accomplished with the most exquisite skill. The trunk and the leather bag within it had both been unlocked and re-locked. The bank notes had been taken out of an envelope without disturbing any other paper in the bag. The victims had no suspicion of the robbery, and probably would not have discovered it until they came finally to require the money.

It was then that the astonished gendarme and his equally amazed superiors discovered that the stoop-shouldered student with the myopic glasses was a special lecturer on criminology, taking a week-end vacation, from the University of Vienna.

The fact is that the graphic signs of the criminal fraternities of the underworld are of great antiquity.

They are known to extend as far back as the fifteenth century. It is believed by such authorities as Ludwig Beckstein and Gross that the same necessity that evolved the use of the crest and the coat-of-arms of the nobles, in the Middle Ages, also developed the graphic signs in the federations of the underworld.

It was an age of symbols. Every guild had its sign and every individual his distinguishing mark. It is in no sense remarkable that criminal organizations had also their distinguishing signs and each individual his mark. An old chapel in the Thuringian Forest bears one of these criminal inscriptions of the fifteenth century. It is in two lines; the first line consists of an arrow pointing to the left followed by four vertical strokes and the sign of a quarter moon. This line of the sign meant that when the moon was in its next quarter, the fourth house from the chapel in the direction of the arrow would be robbed. It was a summons or notice to all the members of the criminal guild who might wish to join in the undertaking.

This summons was put up on the chapel at some time in advance of the date of the robbery, and the members of the band who were willing to join were expected to make their marks underneath it. And under the sign one finds crude drawings of a bird, a die, a key, a pot and a chain. These are the several distinguishing marks of picture-writing signatures of individuals of the band, who thus signified their intention of taking part in the robbery of the fourth

house in the direction of the arrow from the chapel, on the night when the moon was next in its fourth quarter. This case is of particular interest since certain of these graphic signs are in common use by the American hobo, illustrating the antiquity and persistence of criminal symbols.

These signs remain, with some modifications, to this day. They are well known in every police department. Any inspector would tell us that the figure of a key with an arrow across it is the sign of a burglar; that a parallelogram with a dot in the center of it over an arrow is the sign of a hobo card sharp; that a crude heart with three nails driven into the top of it is the sign of a tramp all over Europe.

It is interesting to remember that this sign was originally the hall-mark of the nail maker. Nail makers were a restless sort of workmen in the early ages. They wandered about from forge to forge; and so the sign became the mark of the wandering artisan, and finally of the wandering tramp.

It must not be imagined that these signs are not in use at the present time. There is an organization of criminals in the north of France called the White Wolves, who confine themselves to the robbery of churches. One morning on the wall of a village the authorities found the following signs drawn in chalk: A parrot made with a continuous single stroke, followed by a crude figure of a chapel, and below, three stones drawn above a line (Fig. 2). These signs were photographed and taken to an expert. He explained

that the parrot was the graphic signature of a notorious burglar on the list of the police; that the drawing of the chapel indicated that this criminal intended to rob a cathedral in the village; that the three stones above the line indicated the day of the proposed robbery. It was an old peasant sign having reference to

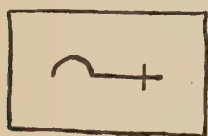


FIG. 3. STOLEN GOODS
BOUGHT HERE

FIG. 2. THE CRIME OF SAINT
STEPHEN'S DAY

the stoning to death of Saint Stephen; and here it meant Saint Stephen's Day, or the twenty-sixth of December. The graphic signs, therefore, meant that this burglar intended to rob the cathedral on Saint Stephen's Day, the twenty-sixth day of December. The police, being thus advised, were able to capture four of the most notorious members of this criminal organization.

The conventional sign (Fig. 3) is used all over England and the Continent, and doubtless largely in America. One has seen it sometimes among the haphazard marks of fake astrologists. It is in fact a conventional sign of the underworld, and means that stolen goods can be disposed of at the place indicated

by this symbol. One would not find it as a sign above a door. It would likely be chalked somewhere on the steps or about the wall as a bit of useful information to the sneak thief.

The American hobo has a very well-established code of signs. A circle, or what might be taken for a zero mark, is his sign that he has received something at the house indicated. A circle with a cross drawn over it means that he has received something, but this something was not money. A slight knowledge of the codes of this wandering brotherhood will indicate one's standing with the members of the fraternities; how one is regarded for generosity and in what objects that generosity is experienced. Tramps are very cunning about indicating generous houses. They have adopted the fifteenth-century sign on the chapel in the Thuringian Forest. They do not indicate the house at its premises, but at some distance away on a wall or fence they will draw an arrow pointing in the direction of the house, followed by a number of short vertical strokes to indicate the number of the house in the direction in which the arrow points.

It is interesting to note here that the hobo of Teutonic origin attaches different meanings to his signs. Thus a circle, by a tramp of this nationality, drawn on a wall of a house or near it, means that he has received nothing, while a circle barred by a cross means that the thing he received was not money. The police are apt to be deceived in the interpretation of hobo signs,

since the code of the common tramp differs from that of the tramp of Germanic origin.

The most complete sign codes to be found in America are those in use by the gypsies. These signs are not always graphic, although a shaded triangle is the gypsy sign that the owner of the house has kept him overnight. The signs of this wandering fraternity are usually formed out of some inconspicuous thing that would not attract attention. They might be all about and the average person would not suspect their existence. They have been carefully assembled by Von Wlislöcki and Glucksmann.

Thus an elder twig left conspicuously along the way a gypsy wagon is traveling indicates that some member of the band is sick; if the twig is burned and accompanied by a wisp of straw it means that the sick man has died; a willow twig means a birth; an oak twig means that one of the party that has been arrested has been released.

Pieces of skin or leather cut and scattered along the road advise all the other gypsies to hurry to the next place for their meeting. Square holes cut in leather indicate towns; round holes indicate little villages. Thus to indicate a meeting place as a town two villages ahead, they throw out a piece of leather with two round holes followed by a square hole cut in it.

Sometimes it happens that persons along the route of gypsies are astonished at their being able to tell

fortunes containing things that have actually happened, or that express the wish of the person whose future is being indicated. This is easily understood when we realize that the advance gypsy wagon, calling at the house, discovers these data, and leaves them behind written plainly in the code of the fraternity. The gypsies following later interpret these signs, avail themselves of the information, and are able to tell the fortunes that so astonish the countryman.

Thus two serpentine lines drawn through a circle indicate that an old woman has died at this place. If these lines are drawn through two circles it means that an old man has died. Points drawn in a circle indicate that a person living here has received an inheritance through death; a serpentine line cutting a triangle indicates the death of a householder; two such lines through the same figure, the death of a householder's wife; a serpentine line through two circles, the unfaithfulness of the husband; a circle with a horizontal line under it, and under this again a circle, matrimonial designs, and so forth.

Persons in this country have been very much astonished to observe that gypsy wagons, following sometimes several days behind the advance pilot wagon, are able to follow it through an unknown country without making any inquiries as to the direction taken. The gypsy often uses this fact as an evidence of the supernatural powers which he is able

to bring to his business of fortune telling. But the truth is that at every crossroads the advance wagon puts down its indicator sign.

These signs are the same in all countries. They consist of little piles of stones arranged according to an indicated code; or a branch of a tree, having forks equal in number to the diverging roads, planted in the ground with the broken branch lying in the direction taken. These signs are to be found everywhere along the line of gypsy march. They are uniform and very old. The authorities have been able to trace them for at least five hundred years, and they were probably brought into Europe by the Asiatic gypsy during the Middle Ages.

One of the most interesting of the criminal graphic signs was unconsciously used by Conan Doyle in his story of the Dancing Men. In this story a message was conveyed by spelling out a word with little one-line drawings of a human figure. The position of the arms and legs of the figures made the English letters of the word. It is a very simple set of symbols (Fig. 4).

Conan Doyle imagined that he had invented this code. When his attention was called to the fact that such symbols were known he replied that his use of them was a mere coincidence. Such a coincidence is entirely likely. The writer has often seen in detective stories signs and codes that very closely resembled those actually in use by criminal organizations, while, at the same time, the evident limitations

of the author convinced one that he had no actual knowledge of criminal groups.

For example, the angle-writing code, on account of its simplicity, is one of the most common of all criminal ciphers. It is based on a system of transformation. The letters of the alphabet are grouped two by two, one of these letters followed by a dot

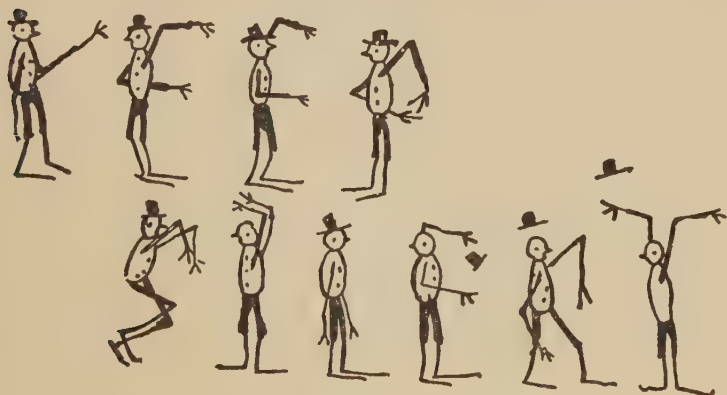


FIG. 4. CONAN DOYLE'S DANCING MEN

Note the position of the arms and legs

(Fig. 5). In this cipher the undotted letter is represented by the simple angle in which it stands, while the dotted letter is represented by this angle with a dot in it. This cipher looks cryptic and mysterious, but its very simplicity has caused it to come into common use among criminals. It is especially indicated by the authorities at the University of Prague.

It is very difficult to persuade the average police authority that criminal organizations are able to communicate in any medium that is not perfectly

obvious to the average prison inspector. An interesting instance of the effect of this idea arose in one of our best-conducted prisons.

A dangerous counterfeiter had been made to believe that his accomplices were in the custody of the police, and were intending to turn state's evidence. The authorities believed that the prisoner was about

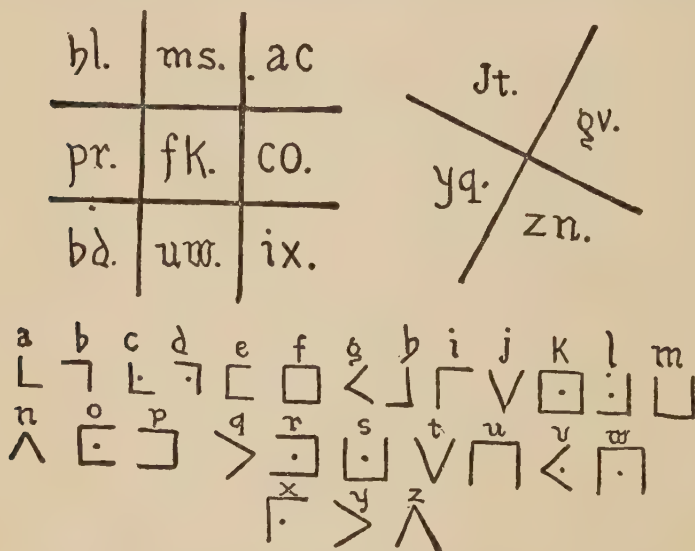


FIG. 5. COMMON CIPHERS THAT LOOK MYSTERIOUS
BUT IN REALITY ARE VERY SIMPLE

to confess in order to gain the court's favor ahead of his treacherous associates. At this critical period, which happened to be a time of broiling summer heat, the prisoner's wife sent a parcel to the authorities asking that it be turned over to the man. The parcel contained merely an old gauze undershirt. One of the sleeves of the shirt had been torn out

but the woman had mended it by sewing it together,

The prison inspector was a careful person, according to his standards. He took the shirt out of the package and minutely examined it for any paper or writing. When he became convinced that it bore no marks of any character whatever he turned it over to the prisoner. Immediately the attitude of the man changed. He became silent and defiant. The prison authorities were convinced that he had received some message, but they were never able to tell how the message was conveyed.

The fact was that the prisoner's wife had communicated with him by what is known in the underworld as the thread-code. This code consists in placing the twenty-six letters of the alphabet in a vertical line at an equal distance, say an inch apart, beginning with the letter *a* at an agreed distance, say twelve inches, from the line of the floor. This code is determined beforehand. Instead of inches, the diameter of a coin or the breadth of the prisoner's thumb may be used. With this code worked out, all the members of the organization are able to reconstruct it anywhere.

The method of communication is to measure with a thread from the floor to the first letter of the message, and at that distance tie a knot in the thread, then measure from this knot, at the floor, to the second letter of the message, there tie a second knot, and so on, until the entire message is spelled out. This thread is then conveyed to the prisoner. In the given

case it was used to fasten the torn sleeve in the gauze undershirt.

This is a code very common among criminal organizations and very easy to get past American inspectors. A thread of sufficient length to spell out a complicated message is easy to conceal and means nothing if discovered. It may be in the dressing of a wound or may hold a garment together, or it may be dropped as a careless raveling.

Another ingenious method of almost universal use in the underworld is the puncture system. The means of communication used in this code are usually pieces of old dirty newspapers used to wrap up something that goes into the prisons. Such fragments of newspapers are not suspected, and are a convenient medium for the use of this criminal code. The code is exceedingly simple. It consists in numbering the letters of the alphabet from a to z in the following fashion:

a	b	c	d	e	f	g	h	i	j	k	l	m	n
1	2	3	4	5	6	7	8	9	10	11	12	13	14
o	p	q	r	s	t	u	v	w	x	y	z		
15	16	17	18	19	20	21	22	23	24	25	26		

Short messages, such as yes, no, and the like, are easily conveyed by this code. The person using this system begins at the head of the column and counts the letters down to the one with which his message begins; there he makes a puncture with a pin, then

he counts down to his second letter and makes a puncture, and so on, until the message is spelled out. It would be too dangerous to put a puncture at letters spelling out the message. It is safer to have the alphabet represented by simple numerals.

A very common method of communication, used by the simpler orders of criminals, is with a pack of cards. The plan is to arrange the cards in a known manner, as, for example, all the cards of a suit in their order, running spades, clubs, diamonds and hearts. Then, when the suits are thus arranged and superimposed one on the other, with hearts at the bottom and spades at the top of the back, the message is written on the edges of the cards, the pack being held tightly together. The message is usually written in figures according to some modification of the codes in which numerals stand for letters of the alphabet. The pack is then well shuffled, and passed along to the person for whom it is intended. To read the message he has only to place the cards in the arranged order.

This simple method of communication seems to go on all the time in the jails over the country. The usual warden in the small town is a kind-hearted individual, and will allow the prisoner to have a pack of cards, especially if the pack is new. What information could there be in a pack of cards? The fact is that codes adapted to card packs are legion!

International criminals, such as smugglers, counterfeiters, forgers and high-class swindlers, are always provided with a secret code. Some of these are as

complicated and ingenious as diplomatic ciphers. These codes usually consist of substituting one or several numbers for the letters of the alphabet, ordinary words or phrases. Often the letters are expressed by two figures combined. Gross gives an illustrative code that is the base of the more complicated criminal ciphers; for example:

c g l p t y	a e i n r w	b f k o s z	d h m q z	u v
4	3	7	1	8

Here every letter is represented by the figure indicating the place the letter occupies in its group (c a b d u are 1, p n o q are 4) together with the number of the group in which it stands; e. g.: g=24, k=37, etc. "To-day" would be expressed in the following manner: 54, 47, 11, 13, 64.

The authorities constantly remind the police, in dealing with criminal organizations of a high order, that the messages to be sent between the members of such organizations are often in a double cipher—that is to say, some criminal argot or some expression with a double meaning is used, so that if by chance the authorities are able to decipher the code they obtain only an expression or message which can have no meaning, or only a harmless meaning, unless its significance is known.

In a celebrated case of international importance a message sent from London to a smuggler in New York when finally translated read "Feed the cattle." Nobody knew what "feed the cattle" meant after

the police had worked the expression out of the cipher code. If the authorities had been familiar with the old smuggling organizations on the borders of Austria they would have had the key to this Delphic sentence.

A European inspector discovered the use of this conventional expression by the merest accident. The story is interesting and is given here in the language of the narrator:

The proprietor of a small piece of forest land was suspected for many years of receiving stolen property and conveying it across the frontier. He was arrested, his wife being allowed to remain at liberty, as she had in the house several little children. The man at his first examination denied everything, but expressed a strong desire to speak to his wife. In spite of the distance she was accordingly brought to the village. The unusual insistence of the man appeared suspicious. Accordingly an interview was refused, but the prisoner was allowed to send any message he chose to the woman. After a lot of bother he said that all he wanted to say to his wife was that she should look well after the cattle, as he had done before his arrest, and see that they had plenty of nourishment.

This apparently harmless message was accurately communicated to the wife. But doubts remained, and the same day the police constable was sent to see the stock. His report was that they possessed three goats and a half-starved horse, which they used for carrying the stolen property across the border. Un-

doubtedly the investigating officers had been humbugged and had been made the agents for conveying an ambiguous and disastrous message.

The matter remained an enigma for a long time. Later on, the report says, the investigating officer happened to take into custody a young girl who had grown up with the criminal smuggling organization of Europe. The officer believed the girl had been stolen when a child, and interested himself in determining her probable origin. She expressed her gratitude by giving the authorities a great deal of accurate information about the codes of these organizations. Among other things she told the inspector that the expression "feed the cattle" meant "admit nothing." Thus they were able to realize that the message which the smuggler had sent to his wife in fact advised her not to admit anything to the authorities, and made it known to her that he had admitted nothing.

In the famous case of the *United States v. Taylor* a similar double code was used. The record of this case reads like a dime romance. A band of desperate outlaws undertook to coin twenty-dollar gold pieces, on Rapid River, in the inaccessible fastnesses of the Craig Mountains, in Idaho. They used Babbitt metal melted in a common frying pan, and made their plaster-of-Paris molds with a genuine gold piece. They put the milled edge on their coins with a three-cornered file. Then they plated the white coins with an electroplating apparatus which they purchased in Chicago:

In their correspondence these gold coins were always called "horses." But for the excessive number of "horses" coming into the Eastern markets from Idaho, the notice of the Government might not have been drawn to these clever criminals.

In an interesting case a message was conveyed to a prisoner by a most ingenious device. The prisoner gave the guard a small coin, asking him to purchase a hairbrush. That evening when the guard went off duty he stopped in a little shop in the village and endeavored to buy the brush for the prisoner. But the shopkeeper thought that a hairbrush could not be bought for the trifling sum which the prisoner had intrusted to the guard.

As the guard came out of the shop he found an old peddler at the door. The peddler had a variety of junk in his basket, and among other secondhand articles conspicuously displayed was a hairbrush with a smooth pine handle. The guard asked the peddler what he would take for the brush. The peddler named a small sum. The guard offered him the coin which the prisoner had intrusted to him and which the peddler finally accepted. This brush the guard turned over to the prisoner. There was no mark of any kind on it. Nevertheless, it conveyed a vital message to the man in the prison, which he was able to read by soaking the handle of the brush in his water jug.

The method by which this message had been put on the handle of the brush is exceedingly interesting. The letters forming the message had been cut into

the soft wood of the handle. After this the wood of the handle had been scraped with a piece of glass until the letters cut into the wood had entirely disappeared. They were no longer visible. The wooden handle seemed smooth, and to the eye bore no trace of any graven character or any indentation. But the fact is that the fibers of wood where pressure has been exerted to cut in letters are compressed below the cuts and remain thus compressed, although after the letters are scraped off no trace of them is visible. If, however, the wood is soaked in water, after a time these compressed fibers swell and the writing stands out in clear relief.

Foreign authorities tell us that the finer the grain of the wood the better it is adapted to this form of secret communication. They insist that all articles formed of wood, taken at criminal rendezvous or introduced into prisons, ought to be examined with the greatest care.

In one famous case the prisoner's wife sent him an old spoon, and asked the prison authorities to permit her husband to have this spoon in his cell. She said he had used it all his life in eating his broth, it had belonged to his father, and it would be a comfort for him to have it near him. There were no visible marks of any sort on the old spoon, and the kind-hearted superintendent permitted its delivery to the prisoner. But the brief message concealed by this method on the polished handle of the wooden spoon completely upset the whole painstaking investigation of the au-

thorities, covering several months of official labor, and protected an entire band of conspirators associated with the old criminal who was so attached to his father's wooden spoon.

Perhaps the most amusing incident of criminal communication occurred in a Russian political prison in Poland. Twenty-eight persons were arrested. These filled the cells, and it was soon evident to the authorities that the prisoners were in perfect communication. In order to prevent this the superintendent undertook to patrol the prison corridors night and day. He requisitioned a company of soldiers who did sentry duty, marching up and down the corridors. The inspection hole or peephole in the door of each cell was left open so that one could see the prisoner as he passed. It was thought that no communication could be held under this surveillance. Any knock signals could be heard and each prisoner would be seen by the sentry as he passed. Nevertheless, in spite of this precaution it was presently certain that the prisoners were again in perfect communication.

The superintendent of the prison went himself to watch the corridors. He observed from his point of espionage that as the soldier sentry passed each cell, after looking in, a hand reached out from the inspection hole and placed a little article on the top of his cartridge pouch hanging on his back. As the soldier passed the next cell another hand quickly appeared and removed the article. Thus it happened that the prisoners were using the soldier sentry for

the purpose of carrying their messages, which they wrote on bits of linen torn from their shirts. The only pencil they had went along from cell to cell with the message sitting on the unsuspecting sentry's cartridge pouch.

The best authorities insist that no letter written by a prisoner ought to be allowed to go out. It should be copied by the prison officials and this copy sent. The original should be retained and filed. This precaution would prevent any signs or secret code writing hidden in the text of the letter.

In a blackhand case in New York a witness who had shown himself favorable to the Government was placed on the stand. Suddenly he refused to make any statement. It was certain the man had received some signal. But the signal was not known, and the testimony of the witness, valuable to the Government, was lost.

These secret signals, especially in use by foreign criminal organizations in this country, are usually some modification of the well-known deaf-and-dumb alphabets, and are made by the position of the fingers.

CHAPTER XV

THE STUDY OF FOOTPRINTS: THE BARE FOOT

IN the effort of the detective writers to create an infallible sleuth Mark Twain took the wind out of everybody's sails. Neither Dupin, Lecoq; nor any of the celebrities of Nicholas Carter, could approach Archy Stillman.

He was a modest, unassuming person. He made no pretensions and, what is incredible in a sleuth, he offered no explanations. But his method was unequaled. If he were shown a footprint that had been left behind by a criminal in his exit he would examine it very closely, like a person with exaggerated myopia. He would get down over the footprint, with his face nearly touching it. He would stare at it motionless for a few moments. Then he would get up and follow the trail of that unfortunate criminal through wood and field, over hill and dale, street and alley, cellar and housetop, where there was no sign, mark, or any visible physical evidence of a track; until finally he cornered him and turned him over to the amazed minions of the law. And he could do it in the dark!

The marvelous skill of Archy Stillman was an

amazing mystery until the inimitable humorist gave his charming explanation:

The detective had been marked by a prenatal influence. His mother had been pursued by bloodhounds. Her son, though giving no physical evidence of a wonderful gift, had inherited the keen sense of smell that belonged to the bloodhounds which had put his mother in terror. It was by means of this naïve device that Mark Twain ridiculed what he believed to be the exaggerated deductions of Dupin, Lecoq and Holmes.

One wonders what he would have thought of the deductions of the modern scientific criminologists.

Even the gift of the bloodhound's nose hardly puts Mark Twain's in advance of these experts. If young Mr. Stillman were shown a footprint, he could trail down the assassin who had made it; but he could tell you nothing about him. But the modern scientific criminologist can tell you all about the assassin from his footprint, so that the police have only to go out and find him.

When the Baron von R—was murdered in a city of Southeastern Europe, the police found on the floor beside the dead man a single track in a splash of blood. The body of the Baron, after his murder, had been placed in a chair, perhaps with the intention of creating the impression of suicide. But in going about his work the assassin had made the single footprint. The police at once sent to the university for the celebrated professor of criminology.

He came, with a group of his students, to examine the footprint.

He was a little, obese, bald man, with a military bearing, for he had been an officer in the Bohemian wars. He had a fine, acute face, with heavy, straight eyebrows—like lines of ebony set into the craggy brow—a large bony nose, and a grizzled mustache that bristled in the military fashion.

He sat down on the floor beside the single footprint, with a small metal tape and a magnifying glass, not unlike the big reading glasses to be seen in this country.

“This,” he said, “is an imprint of a right bare foot, and therefore could not be that of the Baron, whose shoes have not been removed. It has a very high arch, and was made three hours ago. The man who made it was not standing still. He was walking when this imprint was made—probably leaving the room.”

Then he paused, measured the print very carefully with his tape, took out a pencil and made a calculation on a blank page of a notebook, and continued:

“He is a thin man—very slender—six feet and one inch in height. He is a soldier and has been injured in the knee.”

Then he looked up at the police officials.

“You can write down that description,” he said, “and go out and find this assassin while I finish here, with this illustration, my lecture on scientific criminal investigation.”

The police went out, with what the French call a

portrait parlé of the assassin—a slender soldier, six feet and one inch in height, with an injury to his right knee—while the professor of criminology, assembling his students, began his lecture on how he had arrived at these precise conclusions from the single footprint before him.

He explained, first, that, where one was able to ex-



FIG. 6. FOOT WITH A
HIGH ARCH



FIG. 7. FLAT FOOT OR
A FALLEN ARCH

amine an imprint of any sort in blood before that medium had entirely dried, one ought to be able, by an accurate knowledge of the process of coagulation, to say with some degree of precision what time had elapsed since the formation of the imprint. In the case before him he was able to say that this imprint had been made three hours before his arrival.

Any one could see that it was the print of a right foot. He knew the foot had a high arch—that is to say, it was unusually cambered—because the interior line of the print made a deep curve, cutting out a great segment of the print.

He explained that a flat foot would leave the whole print of the foot, but as the foot was arched the print would lessen.

Thus, in a foot with an excessive arch—highly cambered—not more than half of the surface of the foot would appear in the print. This was the case with the print before him. Consequently it was evident that the person who had made the print possessed a foot with an exceedingly high arch. (See Figures 6 and 7.)

He knew that the assassin was walking at the time he made this track on the floor, because the print of the great toe was lengthened and ended in a sort of point. That was because one pressed the toe down in walking. If the track had been made by the assassin when standing still the print of the great toe would be round, because only the ball of the toe, in that case, would rest on the floor. (See Figures 8 and 9.)

He went on to point out that it was always possible by the examination of a print to tell whether the person who had made it was, at the time, walking or standing still, since the track lengthened when one was in motion. Moreover, the print of the foot of one who is standing still is shorter and wider than

the print of the same foot in motion. Thus, in following a track one is able to say where the person making it stopped and where he went on. This was sometimes exceedingly useful and could always be determined.

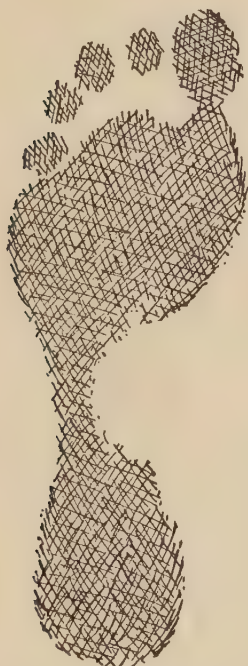


FIG. 8. IMPRINT OF THE
LEFT FOOT OF A MAN
STANDING



FIG. 9. IMPRINT OF THE
LEFT FOOT OF A MAN
WALKING

(Note pointed big toe)

He knew that the man who had made this print had been a private in the German Army, because in walking he used the conventional goose step, which caused the foot to strike the earth in a certain manner and gave a peculiar indentation to the heel.

He knew this soldier had been injured in the knee, because in lifting the foot he had given the ball a twist to the right. This twist could only be caused by a knee injury; a certain weakening of the knee joint that one so injured invariably endeavors to assist by twising the foot. Such an injury would perhaps not cause a decided limp; but the twist of the foot in walking would be easily perceptible.

He went on to explain that a novice in the study of footprints might be easily mistaken with respect to this feature of a print, because everybody twists the sole of the foot somewhat when he walks.

Gross, at the University of Graz, had first determined this by a series of experiments in which he caused a barefoot man to walk up a stepladder of which the steps were glass. By photographing the foot from below as it rested on the glass step he was able to determine the extent and peculiarities of this invariable twist. The experiments of Gross had been greatly advanced and improved by causing the barefoot person to walk on a flat roof laid in glass plates. This method gave more natural results, because the foot in this case was not under the unusual necessity of lifting the body up from one step to another as in the Gross experiments.

The students wished to know how the professor arrived at the conclusion that the assassin was of the exact height of six feet and one inch, and thin.

He replied that M. Alphonse Bertillon, chief of the Service de l'Identité Judiciaire, of Paris, after

a vast number of experiments, had laid down a table of rules by which, if one knew the exact measurement of a certain portion of the body of an individual, he he could work out precisely the dimensions of other portions of his body.

This exact table was known to everybody. One had only to measure the foot and multiply that length by its proper coefficient in this table in order to arrive at the height of the individual making the print. Relatively speaking, the height of a man was from six to seven times the length of his foot. Feet short in proportions to width took a larger multiple than those relatively long in proportion to width. But the table was approximately correct and one had now only to measure the print and apply it. Thus, if an imprint were 225 millimeters, the coefficient or reconstruction would be 6.840; and consequently the subject would be 1539 millimeters in height.

He was, therefore, able to say that the individual in this case was approximately six feet and one inch in height. He knew also that he was slender, because, with that height, any other than an unusually thin person would have made a wider track. Even the weight of an ordinary person of that height would have forced the foot to expand more than it was expanded in this print. He therefore felt justified in the belief that the assassin was unusually slender.

So full, precise and accurate was the description given by the professor of criminology, that he had scarcely concluded his lecture before the police were

able to lay their hands on the assassin. He was a slender German, over six feet in height; his right knee had been injured by a tubercular infection, which caused him to twist his foot as he walked. And it was afterward shown that he was a deserter from a division of the German Army in Munich.

One may believe that the incidents of several experiments are assembled in the foregoing case, but one cannot believe that facts included in these details to be exaggerated or in doubt. A communicated case, especially at this time, is apt to reach us with contractions and elaborations, to gain or to lose by transmission when it is not a matter of legal or official record. But there is no observation or deduction in it that does not rest upon unquestioned scientific authority. They are established by an abundance of painstaking experiments.

The layman might believe the reading of this print to be an exaggerated deduction. But learned criminologists, like Niceforo, at Naples; Gross, at Graz; Reiss, at Lausanne; Ottolenghi or Lacassagne, know that such deductions, are only the evident conclusions of the scientific examination of a footprint.

One should remember with what skill scientists are able to reproduce a prehistoric animal by the mere study of its footprint preserved in some geological formation. The pictures and casts of strange beasts, which one regards with wonder in the museums, are often built up from the slightest data—one or two bones or imprints. By assembling all available facts,

and with a comprehensive knowledge of anatomical structure, it finally happens that the savant is able to get a pretty accurate idea of the size, structure and habits of a prehistoric animal from no other data than a footprint.

Bertillon, in Paris, devoted a lifetime to working out his system of anthropometrics. Finally, as the professor said in the foregoing case, he was able to formulate a table by which, if one were given the size of any organ of the human body, he could reconstruct the individual precisely as the scientists are able to reconstruct the prehistoric animal. His table for obtaining the height of an individual from the length of his foot has been accepted after verification by the leading criminologists:

LENGTH OF FOOT BY GROUP OF TEN TO TEN MILLIMETERS		BERTILLON'S TABLE	COEFFICIENT OF RE- CONSTRUCTION FOR HEIGHT
a to 219		7.170
220 to 229		6.840
230 to 239		6.610
240 to 249		6.505
250 to 259		6.407
260 to 269		6.328
270 to 279		6.254
280 to 289		6.120
290 to w		6.080

Mascard, in 1848, read a bulletin on this subject before the Academy of Medicine, in Belgium. And in 1889, De Parville, in the *Revue Scientifique*, published a formula showing the relation between the length of the foot and the height of the individual:

$$\text{Foot} = \frac{8.6}{30} \frac{(\text{Height} + 0.05)}{2}$$

visible to a trial court or an examining magistrate. This formula De Parville verified upon hundreds of individuals of all ages and proved it to be correct within the maximum of two centimeters.

But a criminal investigator cannot remain content with the mere reading of a print. He must be able to preserve that print so that its peculiarities may be visible to a trial court or an examining magistrate. Moreover, it does not by any means always happen that a print exhibits the distinguishing characteristics set out in the foregoing case.

It is always possible for anybody with but slight skill in such matters to preserve the distinguishing characteristics of a print. The commonest method is to place a few pieces of pasteboard on the floor round the print and then lay a pane of glass over it—the pasteboard is merely to keep the glass from touching the print. Then one takes a sheet of paper, made transparent with oil, grease or turpentine, places this on the pane of glass and traces the print with a pencil or in ink. If no paper is available the print may be traced on the glass in ink.

A better method, suggested by Professor Florence, is to dip a bit of cotton in white lead and frost the glass. This frosting does not render the glass opaque. One may trace the footprint very easily on this frosted glass. Then, if one places a piece of black paper under the glass he obtains a very clear black print; or if he puts the glass in a solution of a certain potassium salt the lead frosting will turn black, and

the result will be a first-class stereotype of the print, which one is able to take off on paper by the usual method. Niceforo, in discussing this method, advises one to varnish the glass in order to preserve the print.

The pantograph is also used. But one must be careful not to injure the print by this method. An optical device by which pictures or objects are reflected on paper is also sometimes used. But nowadays all criminal investigators agree that the best method of preserving an imprint is to photograph it.

Bertillon, Londe, Burais, Paul, Popp, Reiss, and others, have elevated scientific photography, in the subject of criminal investigation, to an elaborate art. However, the photograph of an imprint is no very difficult undertaking. It is only necessary to be absolutely sure that the photographic plate is precisely parallel to the plane of the print.

Figures 10 and 11 show a false and a correct photograph. Nicerforo, in discussing these figures, taken from Coutagne and Florence, points out that an inaccurate photograph is the most dangerous, misleading thing in the world; and that all photographs of prints are worthless unless, as has been said, the photographic plate is precisely parallel to the plane of the print when the picture is taken.

It should be remembered that a footprint does not always require a conspicuous medium in order to make it intelligible. Sweat or the natural moisture of the foot will often make a print hardly distinguishable to the eye, but capable of being developed. Mercury

or chalk is used if the footprint is on a surface of a dark nature, and graphite or lampblack if the imprint is on a white surface.



FIG. 10. FOOTPRINT DRAWN BY THE ARTIST FROM A CORRECT PHOTOGRAPH

(Note the length of the foot as compared with Fig. 11.)

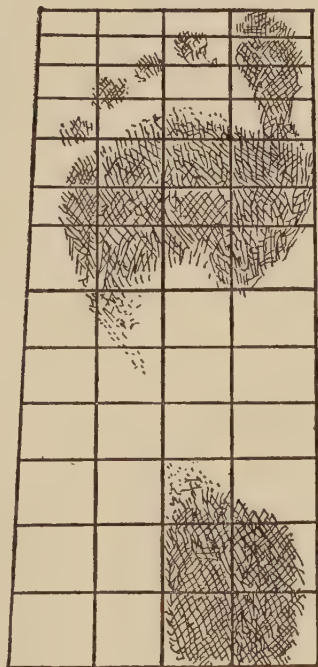


FIG. 11. FROM A FALSE PHOTOGRAPH

A fine distinguishing footprint might be of no value whatever if one were not able to preserve it by some of these methods.

In the notorious assassination at Carmaux, on the

night of the eighth of August, Causse found on a balcony the print of a naked foot. It was outside and would presently have been effaced by the rain if he had not immediately preserved it. As the case turned out, the whole solution of the mystery hung on this print. Eight persons were suspected of the crime. Causse was able to demonstrate that not one of these persons had anything to do with the affair. And it was afterward shown that one wholly unsuspected by the police was the author of the crime. It thus happened that by the preservation of the imprint eight innocent persons were cleared of the charge of murder.

A similar method was followed in the Courvoiser case, in England, and the MacPherson case, in Glasgow. In the latter the authorities found on a plank three imprints of a naked foot. They observed that it was a right foot, small, and with an exaggerated arch. This gave them a precise clew. They were able to discover all the persons who had been about the house or in the neighborhood. And it was finally shown that MacPherson was the only person whose foot could have possibly made the imprint, since it was small and with an unusual arch.

Some remarkable cases have resulted from the scientific observation of imprints.

The Gazette des Tribunaux gives the case of the Arab, Seliman ben Barbi, who had broken into a closed country house. The police in the morning found in the wet earth the print of a naked foot.

This print indicated that the foot making it lacked several toes. The print was traced and careful reproductions were made by the police according to the scientific methods already explained in this paper. These reproductions were also accompanied by an exact, accurate description of the print.

This evidence was preserved, but it did not lead to the arrest of Seliman ben Barbi.

Other evidences connected with the affair, however, indicated that this Arab was the criminal and he was finally taken into custody. His foot showed no peculiarities and the police were not able to advance in the matter until the *juge d'instruction* forced the Arab to walk barefoot on a plank covered with mud. The tracks made by the man in this medium demonstrated conclusively that he was the person who had made the track in the garden. It proved that the peculiar position of the toes in walking caused the track of the Arab to give the impression of a foot curiously deformed by the loss of its toes.

This case conspicuously illustrates the great cardinal rule in the scientific study of footprints—namely, that a foot must never be compared with an imprint.

An inspector once came to the leading criminologist at a Germanic university and told him that he had discovered the person who had left behind a footprint.

“How do you know that?” said the criminologist.

“I know it,” replied the inspector, “because the man’s foot fits into the track.”

The criminologist laughed in the inspector's face.

"You have fitted a foot into a track? *Mein Gott!*"

Every authority on the subject points out that one must never compare the foot with a print or undertake to fit a foot into a print. One must compare the imprint found at the scene of the crime with a like imprint of the foot of the accused taken in a similar medium, and never with the foot itself.

In many American cases, courts and examining inspectors have ignorantly gone forward with the comparison of the foot of the accused with the imprint found at the place of the crime—a thing that no competent foreign inspector would ever think of doing. The foot at rest is always shorter and wider than the foot when walking. And the most distinguishing peculiarities of a footprint are given by the way in which the subject puts his foot down and removes it when he walks. There is always a twist to a print, which the foot in repose does not show. The proper method is to take the imprint of the accused's foot under conditions as nearly resembling those of the imprint in question as possible. Thus, if the imprint is that of a man walking, the imprint of the accused must be taken walking.

Niceforo, Florence and Frecon suggest a number of methods by which the imprint of the accused may be taken for comparison with the original: One may cause the accused to walk on sheets of white paper covered with lampblack. This method gives excellent prints. Florence suggests that one of the

best methods is to make a mixture of water, glycerin and red aniline, soak a thick cloth in this solution, cause the accused to tread heavily on this cloth, and then walk on sheets of white paper. This method gives detailed imprints of the foot. This is perhaps the best method to obtain distinguishing footprints for comparison with the original.

But, as Niceforo points out, one must be very careful to see that the accused does not trick him. An acute criminal will give the foot an unnatural twist, or will press too heavily on a certain portion of it, or will exaggerate the toe or heel pressure, and in a variety of ways undertake to make the print misleading.

Niceforo says that one must not be content with a few prints. He must take hundreds of them, and then he can come to a conclusion about the peculiarities of the imprints only when he has several that show the same distinguishing characteristics.

Some distinguishing characteristic is always to be found by a skilled investigator. A typical case is reported by Doctor Frecon:

The police were puzzled by a mysterious incendiary. Fires broke out in a most extraordinary fashion and they were unable to obtain any clew whatever that would help them to arrive at the identity of the criminal. Finally, one morning, they found the track of a bare foot in the mud behind one of the buildings. This print was carefully molded by an expert. An exact reproduction was presented to the chief of

the Criminal Investigation Department. He pointed out that the mold showed an indentation on the sole of the foot. Such an indentation meant, he said, that the person making it had a wart or protruding callus at that point on the sole of his foot. With this distinguishing clew, the police were finally able to run down the incendiary, and he was tried and condemned.

A learned criminologist at the University of Brussels points out that by the comprehensive examination of an imprint one ought to be able to disclose the sex, age, height, peculiarity in walking, and the profession or trade of the person who made it.

When the imprint of the accused has been obtained, as nearly as possible under conditions similar to those relating to the original imprint, the greatest difficulty in this branch of criminal investigation begins. The prints must be compared and one must be able to say what distinguishing characteristics are common to both, and finally to conclude whether they were both made by the same foot.

This is an exceedingly important branch of criminal investigation.

Niceforo points out that the first thing to do is to compare the prints for dimensions and form. (See Figure 12.)

The prints to be compared are inclosed in a rectangle touching the outlines of the print. This rectangle is bisected by a line running through the print at the point showing the deepest outline of the arch, and cut by a line showing the angle of the toes. This

manner of treating the print is clearly shown from the figure: AB is the length of the foot; CD is the width; CE the depth of the arch. By placing the two prints

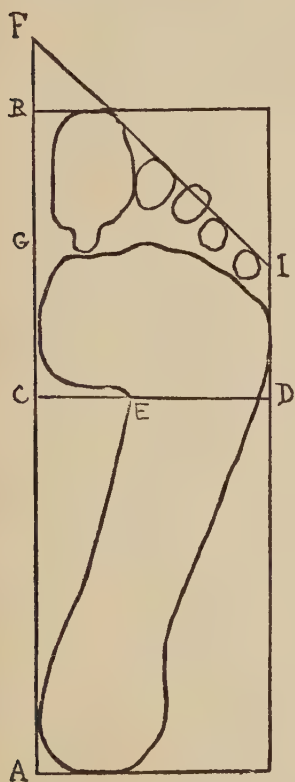


FIG. 12. THIS SHOWS THE METHOD OF COMPARING FOOTPRINTS

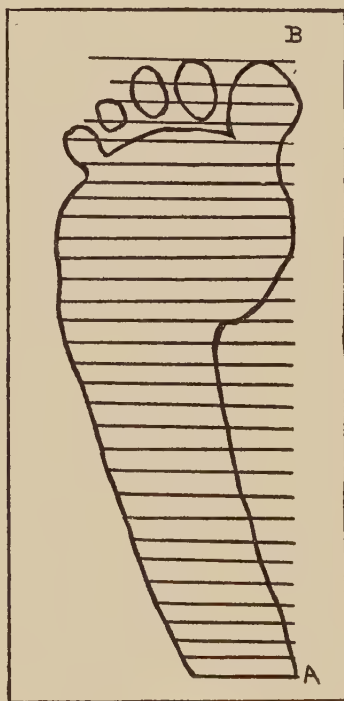


FIG. 13. DRAWING PARALLEL LINES FOR COMPARING FOOTPRINTS IS AN ACCURATE METHOD

in a geometrical figure of this character the gross dimensions and form are at once determined, and the resemblance of the two prints in outlines and dimensions are ascertained.

But when one has gone thus far the work is but half finished. It is necessary to locate precisely the resemblance in the prints, distinguishing characteristics, peculiarities, and so on. In order to do this with accuracy Causse suggests ruling the prints with an equal number of parallel lines and comparing the field of these lines, as is shown in Figure 13. By this means the investigator is able to see whether any peculiarity, like a callus, scar, or the like, is precisely in the same relative position on the two prints.

But by far the best method is a comparison of transparent photographs. By superimposing one above the other, anybody—judges, juries, examining magistrates, and so on—is able to see with what degree of exactness the two prints coincide.

It must also be remembered that the papillary lines of the *planta*, or the sole of the foot, and the balls of the toes, are as individual and permanent as those of the thumb and fingers, and may be used with an equal degree of certainty in establishing the identity of an individual. But it must be remembered that these lines differ in their whorls and structure from the papillary lines of the hands and fingers.

A knowledge of this fact was of conspicuous value in a noted case.

The Countess Z was assassinated in her villa on the Riviera, and her chambers looted. The servants, including her maid, had gone by permission to attend a carnival at Mentone. The police found three distinguishing clews in the villa and nothing more. First,

the door of the countess' chamber was fastened by a rod laid transversely across the door on the side opposite to the direction in which the door opened, and lashed firmly to the knob. The second clew included three imprints of a bare foot in blood. And the third was a little drawing of a human face, wearing a

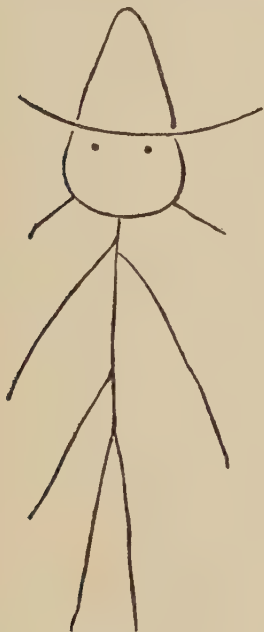


FIG. 14. A SIGN THAT
PERPLEXED THE PRE-
FECT OF POLICE

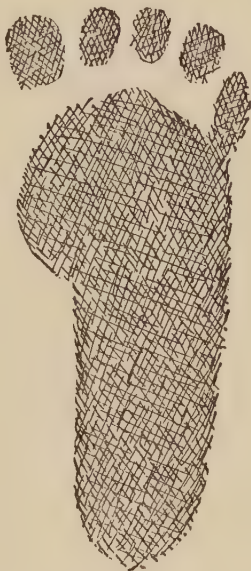


FIG. 15. A FOOTPRINT
MADE BY THE HAND

peaked hat, above five lines branching out below it. (See Figure 14.)

The prefect of police sent for an expert. It seemed evident to him that the crime was the work of some of the Italian criminal orders, and that the mark on the wall was the graphic sign of the individual.

The expert came and went carefully over these three distinguishing clews in the villa.

Finally he declared that not one of the clews was indicative of the assassin, and that all of them had been deliberately made for the purpose of misleading the police.

The expert pointed out that the drawing on the wall was, as the prefect of police concluded, a sign of the Italian Camorrist. But, instead of this figure's being a sign of an individual criminal, it was, in fact, the conventional sign used to indicate the prefect of police. It had been placed there by the criminal, he thought, either in ignorance of its precise meaning or in derision.

It was certain that the crime had been committed by some skillful criminal, for each of the three distinguishing clews had been manufactured for the purpose of misleading the police.

The manner in which the door was tied up indicated that the crime had been committed by a Transylvanian gypsy; the figure on the wall indicated a Neapolitan Camorrist; while the broad flat footprints indicated an Algerian of marked Negroid structure. But, he added, in going to the trouble of making these false evidences of the assassin the criminal had left excellent finger prints, by which his identity could be established.

The prefect of police asked him where the finger prints were.

He pointed out that the prints on the floor were not

footprints, but had been made with the hand—the palm being used for the heel and the *planta* of the foot, and the fingers for the toes. This gave a broad, flat print, Negroid in aspect and apt to mislead the casual observer. (See Figure 15.) But they could not mislead anybody who understood the difference between the structure of the whorls and the papillary network of the hand and fingers as distinguished from those of the foot and toes.

However, here were excellent finger prints. These were taken off in the usual manner and sent out to be compared with the finger prints in the police archives of neighboring cities. It was presently established that the assassin was a well-known leader of one of the gangs of Marseilles Nervi.

A predominating percentage of our criminal class is from Southeastern Europe. It is therefore evident that, to deal with it intelligently, we must find out the methods used by the leading European criminologists.

The most distinguishing clew to these foreign criminals is the footprint. It is an old and persistent trick of Southeastern Europe to go barefoot behind a man to kill him. This habit of the foreign criminal is apt to leave the police with a distinguishing clew in almost every crime committed with violence or entry.

CHAPTER XVI

THE STUDY OF FOOTPRINTS: THE SHOD FOOT

IT used to be said by Matthew Arnold that hardly anybody would think of taking an English book of reference if he could get a French or German one. At any rate no one ever seemed to realize precisely how a man walks until the Teutonic scientists began to study the subject.

It was commonly explained that the physical method of walking was to throw the body forward, out of equilibrium, and catch it with the foot. Gross pointed out that this theory was ridiculous. We, in fact, walk by advancing a leg and then leaning the center of gravity upon it in order to continue in the same manner with the other leg.

With this theory for a base, the crimiologists in the great universities were presently able to equip the police inspector with a number of rules of primary importance.

The police of a great Germanic city found themselves confronted one day by a puzzle they were wholly unable to work out. The owner of a warehouse situated in a suburb of the city maintained that a bale of valuable rugs had been carried out of the

warehouse on the night of the sixteenth of April.

The police took immediate charge of the case. There had been a little rain on the evening before and they found two lines of footprints where a man had come to the warehouse door and returned from it. They were able to follow these tracks to the shop of an Austrian who dealt in antiques. In America this man would have been called a junk dealer, since he possessed only a single room with a dirt floor, situated in the environs of the city and filled with articles of but slight value.

The police were able to show that the Austrian had made these footprints. But here the mystery presented itself: When the man understood what the police were after he at once said that he had gone to the warehouse, on the evening in question, in order to inquire whether the merchant had for sale any of the articles in which he commonly dealt; but that when he arrived the warehouse was closed and he had returned to his shop.

The police searched the shop with German thoroughness, but found no trace of the bale of rugs. They were able to see that the man had not left his shop after he returned from the warehouse, for there were no other footprints in the wet earth in the environs of the shop; evidently he had not gone out after he returned. And, also, it was evident that no bale of rugs was anywhere about his shop.

The police, profoundly puzzled, returned to the merchant.

They thought he was not precisely clear about the bale of rugs he said was stolen. He was not able to produce an invoice of it. But he said it had been a long time in the shops, was of great value, and showed them the outline in the dust on the floor where it had been lying.

Unable to unravel the mystery, the police sent to the authorities for an expert. The expert came and looked at the two lines of tracks. He at once said that the man who came to the warehouse on the night of the sixteenth of April had come empty handed, but had unquestionably gone away carrying something heavy. He explained that when one is walking without a burden one travels in a straight line, turning the feet out at an angle common to that individual. (See Frontispiece, Figure 16.) But that when one is carrying a heavy burden one invariably walks with the feet straight and the legs wider apart, in order to give the body a more stable support under the added weight. (See Frontispiece, Figure 17.)

Thus, when we find a line of tracks going straight ahead close together with the feet turned out, and afterward these same tracks wider apart and the feet set straight, we may be certain that the person who had begun to walk without carrying anything had now taken up a burden to carry.

It may be interesting to add the method by which the expert discovered the concealed rugs. When he arrived at the Austrian's shop he took a kettle of water and poured it on the dirt floor. He went over the

whole floor very carefully. Presently at a certain point he directed the police to dig up the floor. They found the bale of rugs buried at this point.

The Austrian had dug up the floor, concealed the rugs, and tramped the earth down so that the eye could not detect anything unusual. But the expert knew that if the earth of a hard dirt floor had been recently disturbed, and one poured water on the surface, air bubbles would appear. Thus, when he found these air bubbles he was certain the earth of the floor had been disturbed.

Even a cursory examination of the German diagrams will give anybody a good deal of information about how a man walks. In Figure 18 (Frontispiece) the line A A running through the border of the heel is called "the line of march." The lines C C show the direction of the footprint with respect to the line of march. The Germanic authorities maintain that when the normal person walks in a straight line a line drawn through the center of the heels will also be a straight line—that is to say, the heels go ahead precisely on a straight line.

But other investigators are inclined to doubt this. They say that when the normal person walks in a straight line this line of march will touch only the inner border of the heel instead of running through the center of the heel. It may be that with the German military step the line would go through the center of the heel. But in nonmilitary countries, like America, it will usually be found, in normal in-

stances, that the line of march touches the inner border of the heel and not the center.

This is true of normal persons walking in a straight line. But in abnormal persons—sailors, fat men, the aged and infirm, and children—the line running through the heels will be zigzag, like the line B B in Figure 19 (Frontispiece).

The Germans say that persons of leisure turn the foot out more in walking than do workmen or persons in trades. It is thought that women turn the foot out less than men. It is also believed that certain races, like the negro, walk with a very exaggerated foot angle; while the North American Indian travels with the foot almost parallel to the line of march.

Gross undertook to demonstrate the mechanical factors in the act of walking. These factors are outlined in Figure 20 (Frontispiece). He points out that when one takes a stride the perpendicular distance from the hip joint to the ground is reduced, and that as the stride is increased this distance is lessened. Thus, with each step, as the body is lowered, it has to be again lifted. This, he said, was the reason why it was easier for a man to run than to walk rapidly with a long stride. See Figure 21 (Frontispiece).

It is said that one day, when Gross was driving through the park with an acquaintance, his friend pointed out that several persons had gone along in the dust on the road before them. He asked Gross whether he could tell him who the persons were.

The professor got down out of the carriage and drew a mark across the road with his cane; then he stepped off fifty feet along the road in the direction in which the tracks were made and drew another mark across it. He then counted the number of footprints in each of the three tracks within that distance.

One of the lines of tracks showed fewer prints than the other two. Gross, therefore, said that this track had been made by a tall man. The tracks showing the greatest number of prints indicated a short person, while the third track was that of an old woman with a stick.

The persons had not gone along the road together. The tall man had gone first. The peasant woman had followed, since the point of her stick was sometimes to be seen inside the track of the tall man; while the short man had been the last on the road, his track now and then overlapping that of the peasant. Gross thought the tall man was a peasant by the formation of the shoe, and that the short person was a cavalry officer, as he had a tendency to turn in the toe as one does in the saddle.

Zenker used to say that the bare foot gave the most information. But Shauenstein maintained that the shod foot gave more signs of identity. He used to relate a case in his lectures in which it was known that an assassin had carried away the body of his victim, because of the changed manner in the line of march. But the particular thing about this case

of which Shauenstein was especially proud lies in another direction:

He was shown a coat, which was supposed to belong to the man who had disappeared. There was no mark of violence on it except a bloodstain, which extended from the collar down the seam of the coat to the right-hand pocket. After he had examined this coat he told the police that the man who had worn it was dead.

The police regarded this statement with astonishment. The bloodstain did not indicate an excessive hemorrhage and there was no mark of violence on the coat. They did not understand how the learned professor could make any such conclusive statement. Shauenstein then pointed out that he had found in the dried stain one of the small bones of the tympanum known as the "stapedial bone," which is situated deep in the interior of the skull. Any wound bringing this bone to the surface must necessarily result in death.

It is always extremely easy to say from a shod footprint whether the one making it has been standing, walking or running; and also to say, in an approximate degree, the rapidity of the motion.

When one runs rapidly it is always the posterior border of the heel which strikes the earth first. This will be deeply indented. Of all parts of the shoe, in the moving subject, the back portion of the heel and the toe leave the clearest imprints. (See Figure 22.) One is then able, in nearly every case, to determine the sort of shoe that has been worn; to know whether

the toe is round or pointed; whether the heel is flat or narrow, cut out on its inner side or square. And, with a little knowledge of the sorts of shoes worn by different classes of persons, one will be able to say in



FIG. 22. THE SHOD FOOT
(Note that the heel and the toe make the clearest imprint)

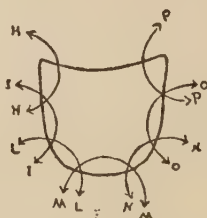
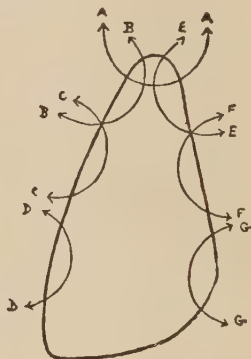


FIG. 23. THE SHOD FOOT
The points on the imprint to be examined are indicated by the curved lines

what class the person making the imprint under inspection belongs.

When the imprint of the shod foot is discovered at the scene of a crime the toe and heel should be first observed to determine the class of shoe to which it be-

longs. One should notice whether the toe is pointed, round or square; the heel wide and low, or high and narrow; the sole narrow and tapering, wide, bowed and twisted, as is sometimes the fashion in American shoes.

Then one must examine the track for heelplates or any mending of the sole or heel, such as patches and stitches, and where the peg marks or stitches appear. If there are nails, tacks or pegs in the heel or sole they must be carefully counted and any missing ones indicated.

After the footprint has been thus carefully examined one must study it for the peculiarities of the person who made it. Every man walks in his own way, and he wears out his shoes always in the same peculiar manner. One must look for these peculiarities in the wear of the shoe as indicated in the imprint.

In order to indicate these peculiarities with accuracy Niceforo has formulated a diagram that ought to be studied by everybody who makes any pretension to criminal investigation. The curved lines in Figure 23 show the points on the imprint to be examined for these individual characteristics.

One must not imagine that the Italian criminologist made an arbitrary diagram. It is said that for many years he studied the worn shoes in the shops of the Neapolitan cobblers. He examined and compared a great number of shoes worn by the same individual before he laid down the rule that the personal formula is constant—that is to say, every man walks

in a manner peculiar to himself, and the areas of greatest wear on the heel and sole of his shoe are always at the same points. Consequently in every case, except that of the new shoe, one leaves the formula of his identity imprinted in the track of his shod foot.

On the nineteenth of March, 1889, Bourdon was assassinated in the Villa Chauvad, at Auteuil. For a long time the most careful investigation of the Parisian authorities failed to disclose any trace of the assassin. Finally on one of the steps leading to the villa they found, in a little puddle of water, the print of eleven nails.

This was the only clew the police ever found.

But it was entirely sufficient. With that clew of the eleven nails they finally located the assassin, D'Alorto. He confessed, disclosed the names of his accomplices, and explained that they had all taken the greatest care to see that no traces were left behind them. But that in going up the steps on the way to the crime he was suddenly so overcome by the fear of the gravity of the offense about to be committed that he stopped for a moment. This pause, while he remained standing with his weight resting on one foot, was sufficient to make the imprint of the nails of the heel of one of the shoes on the stone step that had been softened by the puddle of standing water.

When the learned author of *La Police et l'Enquête Judiciaire, Scientifique* was shown one of Conan Doyle's stories, at the page where Doctor Watson expressed his astonishment at the ability of Sherlock

Holmes to arrive at the conclusion that the assassin was a tall man because of the distance between his footprints, he made the following ironical comment:

“I wonder what this friend of Sherlock Holmes would have said if he had been told that, from the study of a footprint, one could determine precisely not only the height of the person who had made it but also the spread of his arms, his height sitting, the distance from the point of his elbow to the end of his fingers, the length of his third finger, and even the length of his little finger!”

One has sometimes read of criminals deceiving the police by walking backward in order to create the impression that two persons instead of one had arrived from the same direction and had gone away in some unknown manner.

The special lecturer at the University of Vienna has explained the manner in which one can always tell whether such a device has been resorted to. He says that when one walks backward the steps are always shorter, the line of march is hesitating and uncertain, and the footprints invariably disclose a “digging in” of the toe, because in attempting to take a long step backward one must commence it by planting the point of the sole on the ground.

The effort of criminals to mislead the police by fastening on the foot a shoe of a different character from that usually worn by them is also easily detected.

Gross says that the first thing to be observed about footprints evidently made for the purpose of mislead-

ing the police is that they are always to be found in a conspicuous and good medium. A well-formed and exact footprint will be found, more perfect than those usually discovered under like conditions.

And it will happen, with these excellent prints, made intentionally, that one will find, just forward of the heel, the mark of a strap by which they were fastened to the foot.

The relative depth of certain portions of the imprint—as, for example, the toe and heel in these manufactured footprints—will not coincide with those made with a similar shoe worn by a person whom it fits. Thus, a man endeavoring to make imprints with a woman's shoe, or a woman with a man's shoe, will rarely succeed in deceiving an experienced inspector. The stride will somewhere be found to be inconsistent with the imprint; the man will step too far and the woman not far enough.

Footprints have often played conspicuous parts in American criminal trials. But an examination of the cases will make it at once apparent that our courts have never had the benefit of anything that could be called an intelligent scientific investigation of such criminal evidences.

One or two obvious peculiarities have been wholly relied upon in American cases. Thus, in Hunter's case, in North Carolina, in the newly plowed earth near the theater of the crime, the police discovered a peculiar track where a man had crossed a field. The left toe of the man's boot was deeply impressed in the

earth, while the heel was hardly visible. This was a peculiarity of one of the man's feet. The other was an ordinary track. It was not difficult for even a rural constable to conclude that the man who walked here suffered from some physical defect. And from this conclusion the prisoner, Hunter, was suspected, since his left leg was about two inches shorter than the right, the result of an attack of white swelling. This physical defect caused him to walk on the left toe, the heel of the foot not touching the ground. It was shown that, walking in this manner, he made a track identical with that found in the plowed field.

Footprints were also the controlling factor in Carton's case, in Illinois.

On the night of Saturday, the nineteenth of April, the barns of a man named Ridenbauer were burned to the ground. On the following day the premises were carefully examined, and finally footprints were found leading south of the barns in a path toward the county road. Mud was found on the fence at the corner of the field, indicating that some one there had climbed the fence.

This led the investigator to examine the field, which had been sowed to oats.

The oats had not yet come up and the field was soft. They found the footprints of some one who had walked across this field. And it appeared that the imprint of one of the feet made a deeper impression than that of the other. There was evidently some physical reason for this difference in these two foot

imprints. After a good deal of reflection the investigators concluded that the man was probably lame. This deduction led to the arrest of Carlton, who was lame and walked with what the witnesses called "a kind of hop."

It will be seen from these cases that our courts have considered the footprint as evidence only when it showed some exaggerated peculiarity. It is consequently clear that, in all the great number of cases where this exaggerated peculiarity was absent, the footprint as indicatory evidence has been practically abandoned in American cases. This means that in a vast number of cases, for lack of an intelligent scientific examination, the very best indicatory clues have been neglected in our criminal trials.

Sometimes rough dimensions of a track have been compared with the shoe of the accused, a practice open to the greatest errors and never permitted by any intelligent criminal investigator. Sometimes the track found at the place of a crime has been roughly compared with the imprint of the accused's foot, but never with scientific accuracy; so that one has rarely found an American court willing to convict a criminal on footprint evidence without some strong corroborative testimony.

We find nothing to compare with the cases that have been cited by Frecon, where the criminal, in endeavoring to escape, slipped on the edge of a ditch; and from the striations left in the clay by the nails in his shoe he was identified and convicted; or, as in the

case at Lyons, where the criminal, who had accomplished an elaborate robbery, was identified because he happened to step on a leather cushion. From this print on the leather cushion the experts were able to arrive at the size and form of shoe worn by the burglar. It was the track of a right foot, with a



FIG. 24. THE SHOD FOOT

Note the pegs—These enable the police to locate the burglar.

broad sole of what was then fashionable form, with an extremely pointed toe and a large heel.

The imprint of this heel showed a nail or peg at the inner corner and eight nails or pegs running in a half row round the outer turn of the heel. The heel was also worn on the posterior border at the curve of

this row of pegs or nails. (See Figure 24.) These accurate data, taken from the mere imprint on a cushion, enabled the police to locate the burglar.

It is true that the shoe of the accused, containing nails, is sometimes considered by an American court. But such a fact has been taken, usually, as a mere crude evidential sign, to be considered only with conclusive evidence from some other quarter. Sometimes in the most conspicuous cases the presence or absence of such important evidence seems to have been wholly overlooked by American courts.

One of the best examples of typical criminal investigation in this country is Nordall's case, in Montana.

The theater of this tragedy was in the cattle country on the Musselshell River. The scene of the crime showed two distinguishing clews, clearly defined and capable of exact examination. They were, in fact, examined by a number of persons several days after the date of the tragedy. These criminal evidences consisted of the footprints of a man in the soft earth leading from the residence of the victim to a storehouse some distance away, back again to the house, and from there to the river. The second clew was the track of a horse, which could be followed for some distance, leading away from the Musselshell River.

The footprints of the man and the tracks of the horse were clearly imprinted and contained distinguishing characteristics which should have enabled

any intelligent investigator to identify both the man and the horse.

The persons who discovered the footprints saw nothing strange about them. Four or five days later some witnesses for the state examined these footprints. They thought there was "something peculiar" about them, but did not know what it was. But later on, with a number of other persons, they measured the tracks, marking their length and width upon sticks. It is significant to notice that even these crude measures were not produced at the trial. The witness who made them said he had not kept the sticks because the prosecuting attorney told him it was not necessary to keep them!

That was about the extent of the examination of the footprints, except that somebody among the number of persons who visited the place finally discovered that the man who had made the prints had been wearing overshoes.

The examination of the horse's tracks was even more careless, if possible. The witnesses who knew something about horses looked at the tracks and said that the hoof mark was queer. They thought it had been made by a horse named Nig, which belonged to Nordall. They tracked the horse pretty cleverly, located the place where the assassin had left it standing while he walked from the river to the house, and followed the trail where the horse had gone in the direction of Nordall's ranch.

There the matter ended. Nothing was done to

show the court in what manner the tracks were queer, or how they resembled the track of Nordall's horse.

Upon such an examination of marked distinguishing clews the assassin never could have been located or convicted. It happened, however, that there was an abundance of physical evidence indicating Nordall as the assassin. Among other things the authorities found at his house a pair of overshoes. Both of these overshoes were for the left foot. It was then discovered that the "something peculiar" which the witnesses had noticed in the footprints was that they had all been made by what appeared to be a left foot—that is to say, by some one wearing a left overshoe on each foot. See Figure 25 (Frontispiece).

An examination disclosed that there was frozen blood on the bottom of these overshoes, between the heel and the sole. The overshoes were given to an analytical chemist to determine whether the stains were human blood. And, to add to all the other amazing inadequacies in this example of criminal investigation, the expert testified at the trial that he was unable to say whether or not the blood on the overshoes was that of a human being!

Is it any wonder that European authorities dismiss the subject of criminal investigation in this country with the single condemnatory sentence:

"Crude, unscientific and careless!"

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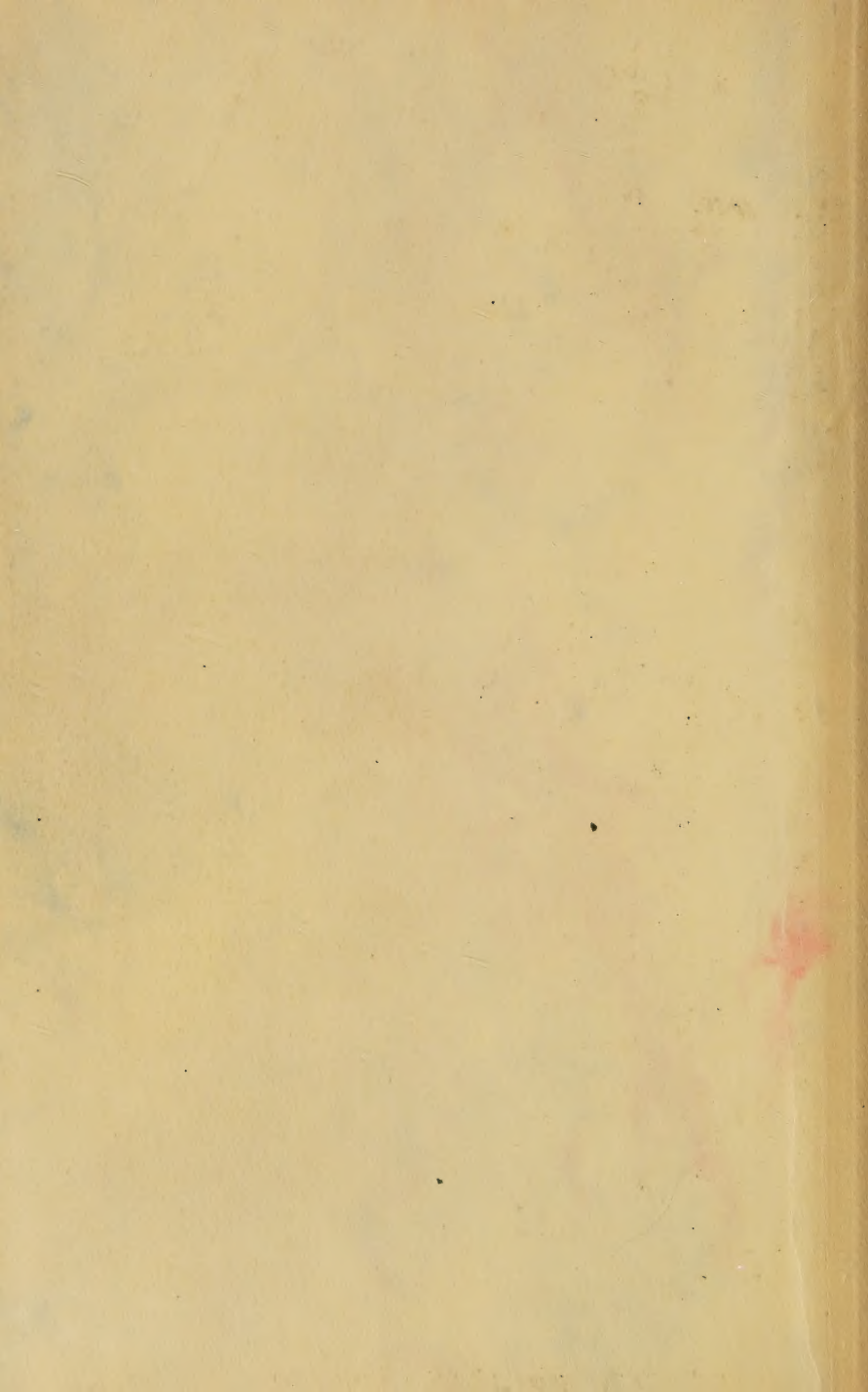
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SECTION

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200

